The Canadian Medical Association Journal

MARCH 15, 1957 • VOL. 76, NO. 6

FIFTY YEARS OF THE TORONTO ACADEMY OF MEDICINE

THE ACADEMY OF MEDICINE OF TORONTO, 1907-1957

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DURING THE SECOND HALF of the 19th century medical education in Toronto was in a "rare and confused" state. During some of this time the town contained three independent and very antagonistic medical schools—Rolph's Toronto School of Medicine which later moved to Cobourg to join Victoria University as its medical faculty, the Toronto School of Medicine of Drs. Aikens and Wright, and the Upper Canada School of Medicine which joined the University of Trinity College. All these schools trained medical students for examinations, which were set by the University of Toronto.

It was not until 1904, when the University of Toronto opened the Medical Building, that order began to appear out of the chaos which had sent William Osler to McGill in 1876 to complete his medical course. A stable medical faculty was established, with which the Trinity Medical School was glad to federate.

As a result of this more healthy atmosphere at the university level, it is not surprising that in March 1907 the Academy of Medicine was formed by the amalgamation of four Toronto medical societies. There were 186 Charter Fellows, of whom 117 had been members of the Ontario Medical Library Association. The Toronto Pathological Society contributed its membership of 67, the Toronto Clinical Society 66 and the Toronto Medical Society 54. The discrepancy in these figures is accounted for by the fact that a considerable percentage of the new Fellowship had previously found it necessary to belong to two or more of the four amalgamated societies.

The above figures show the importance of the Library in the foundation of the Academy and also the strength of Pathology in 1907. As a result of the latter fact the Pathology Section of the new Academy joined its sister Sections of Medicine and Surgery on an equal footing from the Academy's inception.

The new Academy was housed at 9 Queen's Park, which was the home of the Ontario Medical Library. As this building was naturally laid out to accommodate a library, its value as a place to hold medical meetings was limited, and it rapidly became apparent that new quarters would be necessary to provide suitable rooms for these meetings. This object was temporarily achieved in 1911 when the University transferred the Academy's lease of 9 Queen's Park to 13 Queen's Park, immediately north of Grosvenor Street. The jubilation at the increased elbow room provided by the new quarters prompted an Academy President to say, "We have now accommodation suitable for 100 years." He did not reckon with Toronto's capacity for expansion.

Only a few years passed before plans were drawn up for the erection of an addition to the property of 13 Queen's Park in order to provide additional library stack room and an auditorium to hold 200 people—our first Osler Hall.

Although the planned expansion had to be postponed, because of the outbreak of the First World War, it was completed in 1921. This was fortunate, because the world-wide "depression" in the late 20's would have made these additions impossible.

The Silver Jubilee celebrations were held in April 1932. By this time the library had increased from the 4602 volumes taken over in 1907 to 22,526 volumes. The scientific meetings had roughly trebled in numbers as the original three sections had now expanded to nine.

Your present historian became a Fellow of the Academy in 1923, and what follows will be some

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personal recollections of the Academy's later years—the last 25 in particular, as the Silver Jubilee number of the *Bulletin* of the Academy of Medicine for May 1932 summarizes the status at the end of the first 25 years. It is hoped that readers will excuse the frequent use of the first personal pronoun.

THE SECOND TWENTY-FIVE YEARS

In 1931 the Academy was housed in an unpretentious but pleasant old-fashioned private house at 13 Queen's Park. A good photograph of it as it appeared at that time is available in the Silver Jubilee Number of the Academy *Bulletin*, published in May 1932. At that time we were beginning to pull out of the great depression. Certainly depression was so rife that considerable doubts were expressed as to whether we were justified in trying to celebrate the Academy's Silver Anniversary.

My main recollection of the Academy at that time was that it was a pleasant, peaceful spot in which to read. The Banting Institute had just opened and I had just transferred there to start neuropathology. Miss McKeen and Miss Poole ran with efficiency and great geniality the secretarial and library duties respectively. In the 30's there were only nine sections of the Academy, which meant comparatively few sectional meetings. Our original Osler Hall was adequate in size and facilities for the size of our meetings; in fact, many sectional meetings could be held in a committee room. The light refreshments after the meetings always included very good lemonade. The talk which went on then was a valuable supplement to the preceding meeting. It is good that this has now been revived.

In those days our Annual Dinners were held in Osler Hall, which probably could not accommodate more than 100. In the late 30's the larger meetings were beginning to overflow our Osler Hall and latecomers had to hear what they could from the adjoining museum room. There were, of course, no loud-speakers or amplification devices.

The library was then undergoing rapid expansion with Drs. Jabez Elliott, H. B. Anderson and Malcolm Cameron in their prime, skilfully aided and abetted by Miss Poole. As a result, stack-space was running out and the library, like Osler Hall, was becoming inadequate in its physical facilities by the late 30's.

During the Second World War years (1939-45), the Academy carried on its major function as a place where its Fellows could congregate to talk and to discuss academic as well as practical medical problems. I remember a suggestion being made, when the news was particularly bad early in the war, that the Academy might close "for the duration". I also remember a presidential address which consisted of the reading of letters from the President's son overseas. Sir Frederick Banting's death came as a shock to the Academy, as to the whole medical profession of Toronto. We have in our library one of his paintings and in our museum the last letter he wrote before his tragic accident in Newfoundland in February 1941.

Towards the end of the war, the Provincial Government gave us notice that they required 13 Queen's Park to house their police. In view of the facts that the rental had been nominal and that the Province had heated the building for us during our tenure, the problem of finding a "new" Academy within our budget was a major one. On the other hand, it was clear that we had outgrown 13 Queen's Park. We were fortunate in being able to buy, at a reasonable cost, a dignified old family residence at 280 Bloor Street West. This building suitably perpetuates the tradition of an "Academy of Medicine". Although it is not as handy to the university and the large city hospitals, it has the physical advantages of being a potentially very valuable site on the north side of Bloor Street and of being next door to the Medical Arts Building. Because of its essentially "educational" functions the city was persuaded to get a bill passed by the provincial government making the property tax-free while it remains in our possession and retains this primary function.

After the necessary internal reconstruction which required the preparation of the ground floor and basements for the use of the greatly expanded library, the provision of an auditorium and secretarial rooms on the second floor and the alterations necessary to house the telephone service and the museum on the top floor, we were able to move in 1946.

As soon as we started to work in our new quarters, it became immediately clear that they were severely cramped. The number of scientific sections had now risen from 9 to 12 and our auditorium would accommodate less than 100

people in comfort. The space available in the auditorium was obstructed by numerous irremovable pillars, further limiting vision of the platform and projection screen. The librarian's quarters and reading rooms were, and still are, adequate and dignified, but the accommodation for the books was inadequate and very difficult for the librarian. The Museum Committee was rightly voluble in complaint that the museum had been relegated to the top floor. I suspect that a considerable proportion of the Fellows did not know that it existed.

As a result of these crippling inadequacies, it became evident that we must expand. Space was fortunately available on our property immediately behind the main building and it was decided to build our new Osler Hall there, facing on Huron Street.

Excavation was begun in the summer of 1950. Building was sufficiently advanced for the laying of the foundation stone by Dr. H. A. Bruce in the spring of 1951 and the first meeting was held in our new auditorium under the presidency of Dr. James Ross in the autumn of that year.

The two major defects of the main building have been remedied by the new Osler Hall. The capacious basement has provided adequate book-stack facilities for the librarian for some years to come, and the auditorium is big enough for even our largest meetings and is generally considered to be a model in design for efficiency and comfort. The Council and the larger committees now use the board room above the west end of the auditorium, for their deliberations. The present building has a flat roof and is so constructed that two further storeys can be added with safety as the necessity for further expansion arises.

Thus the Academy has been able to retain its very important "academic" atmosphere, with the added modern facilities to make it an efficient and workable structure to satisfy the needs of the ever-growing fellowship.

THE MEDICAL SOCIETY AND THE PRACTICE OF MEDICINE

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IN THESE DAYS of changing values very many things have changed in medicine, some for the better, others for the worse; but the value of the medical society remains unchallenged, although not always fully appreciated. Perhaps the reason for the occasional lack of appreciation, as evidenced by the number of doctors who belong to no such society, is that the term "medical education" is so often applied exclusively to the education of the undergraduate student. And, still worse, the connotation of the term education is taken to be the provisioning of the mind with an overwhelming number of facts.

The important question for the doctor, and still more for his patients, is this: "At the end of ten years will I know more or less than on the day of my graduation?" One thing is certain: he will not know the same amount. Just as the mountain climber cannot pause for more than a few moments to admire the view on the ice slope or the rock ridges, being compelled either to go forward or to go back, so it is with the young doctor when he steps from the platform with his diploma in his hand. His future progress will depend largely on his capacity for intellectual curiosity, and this curiosity in turn will be influenced to a great extent by the type of education he has received as an undergraduate. If the educational process has consisted largely in stuffing the mind with canned food, he may finish up intellectually stunned and in danger of suffering from fatty degeneration of the intellect, with the likelihood that the intellectual curiosity necessary for further development will have been stifled, smothered or suffocated. He is likely to have knowledge without judgment, and, in the words of William Penn: "He who has more knowledge than judgment is made for another man's use more than his own."

The primary function of the medical society is continuing education, although it has a secondary function to which reference will be made later. It is, or should be, as Osler once remarked in this connection, a school in which scholars teach one another. With the development of modern living and modern medicine a bewildering variety of societies has arisen, any of which may be on the local, the provincial, the national, and even the international level. Each of these

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types has its special merits and its special drawbacks. The national and international societies, gargantuan in size, have developed into four or five-ringed circuses involving a considerable element of stress and strain in deciding on the merits and demerits of conflicting groups. You rush from one group to another, only to find that the particular speaker you most wished to hear is just resuming his seat. The great advantage of the monster national or international meeting is that it gives you the chance to see, hear and assess some of the great names of medicine. Usually the experience is successful and enjoyable, but it sometimes results in shattering disillusionment. When a man has once been seen and heard, his written papers become more vital and significant. The only trouble is that whilst modern electronics make a man audible, no matter how vast the auditorium, his personality shrinks to a microcosm when viewed from a back seat, whilst his tables of statistics are so dwarfed as to be completely illegible, unless the listener is armed with powerful binoculars, which unfortunately are not provided by the management.

For these and other reasons there is very much to be said for the local medical society which must perforce be relatively small. In such a group one establishes a relationship with the speaker which is of necessity lacking in the vast auditorium. But the local society itself may be designed for and composed of specialists or of those in the general practice of medicine, the family doctors. The first group presents no special problem. It is made up of those who do not have the brains and the unusual general ability needed at the present time to make first-class general practitioners. The specialist can be trusted to join his own special society. The silent pressure of competition compels him to do so. But with the general practitioner it is otherwise. Osler remarks in his address in *Æquanimitas* on The Educational Value of the Medical Society: "The killing vice of the young doctor is intellectual laziness. He gets the newspaper or the novel habit." That was in 1903, long before television was invented and digests were introduced for the tired business man and doctor. Unless he realizes the full significance of Plato's famous saying that education is a life-long process he is apt to feel that the rush of professional duties by night as well as by day serves as an ample excuse why he should not give up an evening to attend a meeting or even join the society which organizes the meeting. He is free to make that choice, but he must do so with the knowledge of the truth of the line in Rudyard Kipling's *St. Helena Lullaby:* "If you can't go forward, you must e'en go back."

The onrush of knowledge at the present day is apt to be rather terrifying to the man who graduated some 10 or 20 years ago. After all, it is only 20 years since the sulfonamides were first introduced. In the short intervening period the floodgates of knowledge have been opened and the general level of our knowledge of antibiotics, antihistaminics, anticoagulants, blood groups, enzymes, virus infections, congenital heart disease and the chemistry of the cell has risen almost beyond the sight of many of us.

It is here that the medical society should come to the aid of the practitioner. But is he going to be repaid for taking the time off to attend the meeting? The answer to that question depends on two factors: the program and the method of presentation of the material. The preparation of the program lies with the secretary and his program committee. Admittedly this task is a difficult and thankless one. They may think up excellent subjects, only to be turned down by the men whom they request to present the material. In that case they may have to depend on contributions offered by the members. Here a double trap presents itself. In the first place the material, although of importance to the man who offers it, may be completely lacking in interest to the audience at large, and in particular to the general practitioner. The small society can provide the ideal place for the presentation of patients with neurological or endocrine disturbances, abnormalities of gait and posture, congenital malformations, etc., and such a presentation will linger longer in the mind than any lantern slide seen for a fleeting moment on the screen. Occasionally the members may be fortunate enough to hear the presentation by a master of a general concept such as diffuse collagen disease or hepatocellular failure. But the second trap in the path of a successful program lies in the fact that no matter how fascinating and vital a subject may be, its presentation is often of such a character as to destroy all the life and interest inherent in it, and to make the wearied listener vow that

never again will he waste a precious evening in such a profitless manner.

That brings up the question of the best manner of presenting material to a scientific gathering. No hard-and-fast rules can be laid down, because individuals vary so greatly, and what may suit one may prove quite unsuitable for another. A manner which may be appropriate for the presentation of a clinical case to a small group may be quite inadmissible when giving a presidential address, a memorial lecture or a Hunterian oration. There are certain general principles, however, the observance of which may immeasurably improve the effect produced on the audience.

The commonest and in a way the most natural mistake is to suppose that a paper written for publication is equally suitable for reading to an audience. Nothing, of course, could be farther from the truth. The paper for publication should be filled with detail, both clinical and laboratory, designed to prove the thesis presented and the conclusions arrived at. Such a plethora of information cannot be grasped, digested or remembered by the audience. All irrelevant material, which so easily flows from the pen to the paper, must be ruthlessly expurgated. If the disease is believed to be an occupational one, details of that occupation are allowable, perhaps mandatory, but why mention that the patient is a stonemason, a gardener or a fishmonger if he is suffering from a cerebral tumour? It should be possible for a member of the audience to interrupt the speaker at any moment with the disconcerting question: "For what reason have you mentioned this fact?" This applies equally well to the masses of laboratory data compressed on a lantern slide, the figures being illegible at the back of the room. The master of presentation uses the minimum of figures in the largest possible type. The art of giving a paper is a most valuable one to acquire and one which can be learned very much more easily than the golf swing, to which many of us devote endless hours. What we hear at a meeting is apt to live in the memory longer and better than what we read in a book. But it has to be presented vividly if it is to live.

A general rule which cannot be gainsaid is that it is easier to listen to a man who is speaking to you than one who is reading something to you. This is because he does the former in a natural, the latter is in an artificial, manner. In a bygone age the difference was not so marked, because children used to be taught how to read aloud at school. This is no longer possible, because the teachers themselves are lacking in the art. Nowadays it is the rarest thing to find a man who can read well, that is to say, who can convey the impression that he really understands and means what he is saying. That is strikingly exemplified every day by the radio announcers, who in reading the news are guilty of astounding mistakes which make nonsense of what they are saying, but who in the next sentence calmly correct themselves as if nothing had happened. Not long ago I attended a small symposium at which the speakers were of international reputation, each a master of his subject. Before each speaker started I closed my eyes and tried to determine after the first few sentences if he was speaking from notes or reading a manuscript. On opening my eyes in only one instance did I find that I was wrong. If you want to tell a friend about a fishing trip, a golf game or an interesting medical case, you do not produce a piece of paper from your pocket and proceed to read the facts in a dull monotone. But that is what so many men do when they find themselves on a platform at a medical meeting. Moreover, all too often the speaker lowers his head, fixes his gaze on his manuscript, and at the end of 20 minutes looks up with an expression of astonishment that any of his audience are still there. We have all seen a speaker begin by announcing in a confident voice that his patient was a woman, and then, after consulting his manuscript, tell the audience that the said woman was white or coloured, and 20 or 50 years of age, as if he did not know these facts before.

Another distraction which can spoil an otherwise excellent presentation is when the speaker allows the bright spot of light of an electric pointer to dance across the screen in a zig-zag manner in response to the nervous twitchings of the hand which holds it. Equally unfortunate in its effect is the habit which some speakers have of turning their back on the audience and gazing at the screen as if the picture displayed there meets their astonished gaze for the first time. No comment is necessary in relation to the speaker who has not arranged his slides in the proper order, and who fixes his pained gaze on the lantern operator with the suggestion that he has discovered the real culprit.

The difference between a successful meeting and an unsuccessful one may depend on the easily rectified errors of presentation enumerated above. The audience also have their part to play. Why is it that early arrivals so often occupy the back row of seats, where in a large hall they cannot see the screen properly, where they miss the personality of the speaker, and leave depressing rows of empty seats in front of the platform? Is this due to a false modesty, or is the real explanation laziness and a lack of consideration for the feelings of the speaker and of latecomers?

I have said that the primary object of the medical society is the continuing education of its members. There is a secondary object, which in some instances may take precedence over the primary one. This object is the fostering of cordial relations between the members. In a large meeting this is not possible, but when the group is reasonably small it should be possible to arrange for the members to gather together afterwards over coffee and biscuits and cheese. This gives the opportunity to meet a guest speaker, to discuss with one another the papers which have been presented and the failings of the various speakers, and last but by no means least, to make new friendships, to strengthen old ones, and, it may be, to smooth out petty irritations and friction which may have developed in the course of professional work. Under these circumstances it is surprising to what a degree differences can be resolved and brotherly love re-established; the man who has been an irritant for the past week or month proves to be a remarkably human being. The society may act, in Osler's words, as a "professional cement".

Given a medical society which can be run on the lines that have been suggested, surely there can be no question as to its value and the beneficent influences which it must exert on the practice of medicine in the community.

ORIGINAL ARTICLES

EFFECTS OF PROMAZINE* IN MENTAL SYNDROMES†

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SINCE THE INTRODUCTION of chlorpromazine in psychiatric treatment[1-3] many new substances have appeared with the presumption that they will replace, fortify, or surpass it in the pharmacotherapy of mental disorders. Except for rauwolfia derivatives, which appear to show certain selective actions on certain psychodynamic systems,[4, 5] other new drugs have not fulfilled such expectations.[6] Chlorpromazine still is the most potent of substances used in pharmacotherapy. The search for similar but somewhat less toxic substances led to the claim that a precursor of chlorpromazine, promazine, fulfils such a function. Studies in acute alcoholic psychopathology[7-8] have shown similarity of effects between chlorpromazine and promazine. The present investigation was undertaken to evaluate the gross clinical effects of promazine in mental syndromes, and to compare it with chlorpromazine.

MATERIAL AND METHOD

Sparine, known by the generic term promazine hydrochloride, is a phenothiazine derivative, which does not contain the chloride ion found in chlorpromazine. This drug was administered to two groups of patients: (1) 100 unselected patients suffering from what are called acute or recently apparent psychotic or neurotic states, in an open psychiatric setting; and (2) 26 so-called chronic schizophrenics in a closed psychiatric setting. The first group consisted of 40 male patients with an average age of 39 years, and 60 female patients averaging 45 years. The group as a whole comprised 20 schizophrenics, 29 manic-depressives, 45 neurotics, and three organic cases (Table I). Except for three manic patients who received the drug initially intramuscularly, all patients received it by mouth for an average period of three weeks. The dosage ranged from 100 to 1500 mg., with an average of 400 mg. per day. All patients received concomitantly some kind of supportive psychotherapy.

*Promazine, under the trade name Sparine, was kindly supplied by John Wyeth & Brother (Canada) Limited.

†From McGill University, Allan Memorial Institute of Psychiatry, Montreal; and Verdun Protestant Hospital, Verdun, Quebec. Presented before the Medico-Chirurgical Society, Montreal, October 18, 1956.

TABLE I.—RESULTS OF PROMAZINE (SPARINE) THERAPY

Diagnosis	*No. of cases*	*Improvement* — *Marked*	*Moderate*	*Slight*	*None*
(1) SCHIZOPHRENIA					
Paranoid, agitated	10	5	5		
Paranoid, non-agitated	5		2		3
Hebephrenia	2		1		1
Borderline	6	4	1	1	
(2) MANIC DEPRESSIVES:					
Manic	10	6	3	1	
Depression, agitated	8		6	2	
Depression, non-agitated	11		1		10
(3) NEUROSES:					
Anxiety neuroses	23		12	9	2
Anxiety hysteria	6		1	3	2
Hysteria	4			1	3
Obsession	3				3
Addiction	6		4	1	1
Character neuroses	3				3
(4) ORGANIC PSYCHOSES:	2		1	1	
Post-lobotomy agitated	1		1		
Total	100	15%	38%	19%	28%

The second group consisted of 26 male patients with an average age of 38 years. They received promazine for an average period of eight weeks, with an average dose of 800 mg. per day.

The following investigations were performed on all patients of the first group: blood pressure, pulse, and temperature recorded twice daily; weekly weight determination and urine analysis; white cell count and differential count once a week on the first 50 cases, and only the white cell count on the last 50; liver function tests consisting of alkaline phosphatase, cholesterol, and cephalin cholesterol tests twice a week in the first 25 patients, and only alkaline phosphatase twice a week for the remaining cases. Other liver function tests were performed when there was a rise in alkaline phosphatase level.

The clinical observations were grouped according to four criteria: (1) symptomatic relief; (2) better ward management; (3) ability to live at home; and (4) ability to work. The patient was categorized as slightly, moderately, or markedly improved, according to whether he could be classed under criterion 2, 3 or 4.

RESULTS

(a) *Physiological changes.*—A relatively mild hypotension occurred in 70% of cases. Systolic blood pressure dropped an average of 10 points, and diastolic pressure an average of seven points. In only one patient was the drop marked enough to produce a transient fainting episode in the upright position. In 30% of cases the blood pressure remained unchanged and steady throughout the period of drug administration. There was a slight gain in weight in most patients. In six the appetite increased considerably with an associated weight gain of 8 to 15 lb. The blood cell picture remained within normal limits. Liver function tests showed slight changes in 4% of cases (see *Side-effects*). There was no detectable change in urinary function. One patient showed marked sensitivity to insulin. This patient was receiving somnolent insulin for two weeks when promazine was started. Subsequently he showed considerable sensitivity to insulin and his somnolent dose of insulin had to be decreased from 60 units to 10 units; even with this dose he would become almost comatose.

(b) *Clinical results.*—We shall discuss briefly the results obtained in each diagnostic category.

1. *Schizophrenic states.*—In the open psychiatric setting 23 patients were treated with an average daily dose of 500 mg. for an average period of three weeks. Best results were obtained in agitated paranoids. The improvement was in the direction of better ward management, without any fundamental changes in symptoms. However, in two patients seen within a week of onset of an acute episode the treatment, instituted outside of the hospital, resulted in abortion of the acute exacerbation. In another borderline case the impression was that the treatment had prevented an acute breakdown.

In the closed psychiatric setting 26 chronic schizophrenics were treated with an average daily dose of 800 mg. for an average period of eight weeks. The drug was used to improve ward management. This objective was realized in 14 cases.

2. *Manic-depressive states.*—Twenty-nine such cases were treated with an average daily dose of 900 mg. for a period of three weeks. The best results were obtained in manic states. All of 10 manic patients improved. In four of these the phenomenological state returned to the pre-manic phase within 10 days, and the drug could be discontinued in two without return of symptoms.

Six out of eight agitated depressed patients responded well as far as agitation was concerned; there was no clinical improvement in the depressive state.

3. *Neurotic states.*—Forty-five neurotic patients were treated with an average daily dose of 300 mg. of promazine for an average period of four weeks. The majority of these patients were clinic cases. Thirty-one cases showed some relief of symptoms, particularly anxiety and tension.

In four cases of addiction associated with agitation and some toxic reactions, relief of immediate symptoms was satisfactory.

Four organic cases with agitation (one post-lobotomy agitation; one hypomanic state associated with arteriosclerotic brain disease; two senile agitated states) responded satisfactorily from the point of view of ward management.

SIDE-EFFECTS

There were relatively few complications. In a previous study with chlorpromazine,[9] alkaline phosphatase level was found to be a reliable early index of hepatic dysfunction. Among 100 cases with liver tests twice weekly, alkaline phosphatase level rose beyond normal limits (15 units for this laboratory) in four cases. With cessation of treatment the results returned to normal within a week. In one additional case, blood cholesterol level rose abnormally and remained thus throughout treatment with no other alterations. It was also noted that in five patients whose alkaline phosphatase had risen to abnormal levels under chlorpromazine therapy, a return to normal values was shown when promazine was substituted for chlorpromazine.

No hæmatological changes of significance and no extra-pyramidal developments were observed. Four patients developed a moderate œdema of hands, feet and face. The drug was not discontinued in any of these patients. In one of the four the addition of Phenergan resulted in speedy disappearance of œdema. As mentioned above, one patient developed marked sensitivity to insulin. One of the chronic schizophrenics had an epileptic seizure on the second day of promazine therapy.

We were particularly impressed by the lack of drowsiness and "knocked out" feelings. Only nine patients complained of undue drowsiness. It was noted that the degree of clinical improvement had no apparent relation to the overt sedative effects of the drug. On the contrary, drowsiness was quite uncomfortable to patients, particularly those treated on an outpatient basis who had to continue to work. In manic patients where disappearance of overt symptoms was most evident the improvement occurred without patients becoming drowsy and forced to remain in bed.

COMPARISON WITH CHLORPROMAZINE

In a relatively small number of cases the clinical and biochemical effects of promazine and chlorpromazine were compared. The 26 chronic schizophrenics in group 2 of the present study had previously received chlorpromazine for an average period of three months and an average daily dose of 500 mg. Comparison of the two periods from the point of view of ward management showed identical results. Improvement in ward behaviour was shown by 15 cases during the chlorpromazine period and by 14 cases during the promazine period. In seven manic patients and three agitated paranoids the clinical response was identical, i.e. all showed from moderate to marked improvement. Five depressed patients did not show any improvement on either drug. At present the clinical effects of the two substances are being studied in a relatively large series of cases, the result of which will be reported later. However, it has been noted that the incidence of hepatic dysfunction was 25% in chlorpromazine-treated cases in comparison with 4% in promazine-treated cases. Liver dysfunction here does not include jaundice, but represents only an abnormal rise in alkaline phosphatase level.

From the above comparative study and the one under investigation at present, the follow-

ing impressions were gained in regard to the differences between promazine and chlorpromazine:

1. The clinical effects of promazine are similar to those of chlorpromazine, but to obtain a similar clinical response higher doses of promazine are necessary. This difference on the basis of daily dosage appeared to be between 30 and 100 mg. in acute psychotic states, and between 100 and 400 mg. in chronic psychotic states. Also there was a greater time lag between the administration of the drug and the clinical response to promazine than to chlorpromazine. This time lag was of the order of 24-48 hours.

2. Liver dysfunction (4%) was less common in promazine-treated cases than in chlorpromazine-treated cases (25%).

3. Extrapyramidal complications did not occur in promazine-treated cases, within the dosage range used in this study.

4. The relative absence of drowsiness, sleepiness, and knocked-out feelings with promazine therapy, irrespective of the degree of clinical improvement, is noteworthy.

CONCLUSION

The foregoing observations give the impression that promazine is effective in the treatment of certain mental syndromes, and that this effectiveness is similar to that of chlorpromazine. It was found that the following two characteristics of promazine therapy made this drug more useful in the treatment of patients seen outside a hospital, in clinics or privately: (1) the lack of liver function alterations; (2) the paucity of somnolence and drowsiness. It is evident that for patients who are functioning in society the presence of undue drowsiness, or the appearance of hepatic dysfunction which will necessitate the cessation of treatment, may become a relatively important handicap. However, because of the larger doses of promazine necessary to produce maximum clinical response, and a certain time lag, chlorpromazine remains the drug of choice in closed psychiatric centres, so far as can be determined at the present time. It should be emphasized that the present study was only a screening procedure to determine the clinical categories of patients most responsive, symptomatically, to the drug. Further investigations are necessary, and are under way, to determine the influence of promazine on the finer psychological states of the individual and on psychodynamic structure.

SUMMARY

1. One hundred non-selected patients in an open psychiatric setting and 26 chronic schizophrenics in a closed psychiatric setting were treated with an average daily dose of 400 mg. for the former group, and 800 mg. for the latter group, of promazine (Sparine).

2. In 23 recent schizophrenics the best results were obtained in agitated paranoids (10 cases), and in borderline states (five out of six cases). In 26 chronic schizophrenics improvement in ward management was noted in 14 cases.

3. Nine out of 10 manic patients showed considerable improvement, and eight agitated depressives benefited moderately from promazine therapy. Non-agitated depressed patients showed no change.

4. Thirty-one out of 45 neurotics showed some symptomatic relief, and three agitated organic cases responded favourably.

5. Complications were few and consisted of allergic responses in 4% of patients and a rise in alkaline phosphatase level in 4% of cases. There was no jaundice or extrapyramidal change.

6. The comparison of promazine and chlorpromazine in 41 cases indicated similar clinical effects. However, the dosage of promazine was higher and the time lag between the administration of the drug and the clinical response longer than with chlorpromazine. The incidence of hepatic changes was about six times higher in chlorpromazine-treated cases than with promazine. The different therapeutic positions of the two drugs are discussed.

The authors acknowledge their gratitude to Dr. M. Beach for providing some valuable data, and to Dr. R. A. Cleghorn for his comments and suggestions.

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RÉSUMÉ

Un groupe de cent malades, dans une ambiance psychiatrique libre, et un second groupe de vingt-six schizophrènes chroniques, dans un milieu psychiatrique fermé, furent traités à la promazine (Sparine, *marque déposée*), en dose quotidienne moyenne de 400 mg. pour les premiers et de 800 mg. pour les seconds.

Dans un groupe de vingt-trois schizophrènes récents, les meilleurs résultats furent obtenus chez les paranoïaques agités (10 cas), et dans les aberrations mentales semblables (5 cas sur 6). Dans le groupe des 26 schizophrènes chroniques, on nota une amélioration du comportement social dans 14 cas.

Sur 10 maniaques, soumis à la thérapie par la promazine, neuf montrèrent une amélioration considérable, tandis que 8 déprimés agités, soumis à la même thérapie, en retirèrent un bénéfice modéré. Les malades déprimés non-agités n'accusèrent aucun changement.

Dans un groupe de 45 névrosés, trente-et-un accusèrent un soulagement symptomatique, tandis que 3 cas d'agitation organique réagirent favorablement.

Il n'y eut que peu de complications: des allergies chez 4% des malades et une hausse du niveau de la phosphatase alcaline dans 4% des cas; pas de jaunisse ni d'atteinte aux faisceaux extra-pyramidaux.

La comparaison entre la promazine et la chlorpromazine dans 41 cas indiqua des effets cliniques semblables. Cependant, les doses de la promazine étaient plus élevées et l'intervalle entre l'administration de la drogue et le résultat clinique plus long qu'avec la chlorpromazine. Les complications hépatiques se produisirent environ six fois plus souvent dans les cas traités par la chlorpromazine que dans les cas traités par la promazine. Les qualités particulières de chacune des deux drogues sont exposées dans l'article. M.R.D.

CLINICAL COMMENTS CONCERNING GASTRIC RESECTION FOR DUODENAL ULCER

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BECAUSE THE OPERATION of gastric resection is becoming so common, and because the general "across-the-country" morbidity and mortality rates are not decreasing, either actually or relatively, a brief discussion of some of the practical factors concerning the safety and the ease of the operation seems to be worth while.

The preoperative and postoperative factors, including the indications for surgery, have been discussed previously.[1]

The problem will be discussed very briefly under the following headings:

1. The Incision.
2. Exploration of the Abdomen:
   (a) Ruling out non-related diseases,
   (b) Confirming the preoperative diagnosis.
3. Exposure and Assistance (preparation of the operative field).
4. Clinically Applied Anatomy and Physiology.
5. Resection:
   (a) Decision regarding extent and type of operation.
   (Remove the ulcer?)
   (b) The pancreas;
   (c) The duodenal (distal) stump;
   (d) The gastric removal and closure, and anastomosis:
   (1) The amount of stomach removed;
   (2) The new lesser curvature;
   (3) The position and size of the new stoma;
   (4) Hæmostasis and possible hæmatoma at the site of the anastomosis;
   (5) Some factors concerning the proximal jejunal segment;
   (6) The anastomosis *per se*;
   (7) An ante-colic or retro-colic anastomosis and its implications.
   (e) Final inspection.
6. Closure of the Abdomen.

1.—THE INCISION

Uninhibited working conditions are necessary. A satisfactory incision also means less traction, less tension, less trauma, and therefore less morbidity, and maybe a lower mortality.

A very practical incision starts about one to two cm. to the left of the midline as high as the costal margin will allow, and crosses the midline in an oblique direction to finish three to five cm. to the right of the midline about the level of the umbilicus. It incorporates the advantages of both right and left paramedian incisions, as well as the subcostal or transverse. It produces a minimum of postoperative pain. In the flaring type of costal angle the straight transverse incision is sometimes of value. This is particularly useful if the central part is projected upward towards the ensiform process in the midline to form a T type incision.

2.—EXPLORATION OF THE ABDOMEN

(A) *Ruling out Non-Related Disease*

The presence of any non-related disease should be known, even if it is not corrected at the time of this operation (for example, large kidney, pelvic lesions). Not many lesions will be overlooked if the entire abdominal contents are thoroughly and systematically inspected, from the œsophageal-hiatal area to the rectum. Gallstones are not uncommonly found and may, indeed, even be the cause of some of the symptoms previously attributed to the duodenal ulcer. Although carcinoma of the large bowel is not common, it is not uncommon and should be looked for specifically. Diverticulosis is more common and, if inflammation is present, it may produce epigastric complaints resembling those of duodenal ulcer. Hepatic cirrhosis, a large spleen, and portal hypertension, as evidenced by dilated tributaries of the portal system, are all easily recognizable and may cause symptoms. The appendix should be removed as a routine unless contraindicated.

(B) *Confirming the Preoperative Diagnosis*

Confirmation of the preoperative diagnosis means affirmation of the positive relationship between the condition found and the symptoms for which the patient is being operated upon. The finding of other conditions often requires the re-evaluation of the history. Sometimes we are too hasty in accusing an ulcer, which has been known to exist for many years, of being the cause of the symptoms, when more thought would have aroused suspicion of other structural or functional changes. Therefore the history must be thoroughly known before operation. The best operation for the condition found should be decided upon as early as possible.

3.—EXPOSURE AND ASSISTANCE (Preparation of the Operative Field)

The preparation of the operative field should be a planned and definite procedure in which anæsthesia plays a very great role. It is a special part of the operation. Manual retraction is often better than mechanical retraction. A well-balanced and co-operative surgical team can reduce the operating time by as much as 50% in some operations. These factors help to promote better and happier relaxed working conditions for the surgeon and consequently better results for the patient. Although this applies to all surgical operations, it applies most to those abdominal operations in which anastomoses are done.

We have found the use of plastic dressing pads along the edges of the skin to be of value. They prevent blood soaking through the skin protectives so that the anterior surface is always clean.

4.—CLINICALLY APPLIED ANATOMY AND PHYSIOLOGY

Grave dangers await the surgeon who does not thoroughly know the usual and unusual anatomy of the operating field. And even greater dangers may await the patient. Also, unless the normal and abnormal physiology associated with the production of duodenal ulcer is understood, the general procedures necessary for a successful resection will be carried out more by good luck than by good management.

Anatomy

The anatomical aspects of the posterior gastric wall, the left gastric artery, the vascular arcades in the duodenopancreatic area, and the possible adhesive relationship of the right gastrocolic and mesocolic folds seem to be the most commonly misunderstood factors. The anatomical relationships of the left gastric artery should be well studied at autopsy (not in the cadaver) by anyone proposing to do gastric surgery. This artery can best be "handled" after the greater curvature has been devascularized and the stomach has been turned up towards the head of the patient (or after the duodenum has been sectioned), and the peritoneal reflexions between the pancreas and the posterior wall of the stomach have been separated. This procedure also produces much less trauma to the pancreas because all manipulations are made in clear view. When the left gastric artery is clamped from the anterior (front) side, the pancreas can be traumatized, all the branches may not be tied, and the transected stomach may bleed profusely.

If parts of the right mesocolon are fused with the posterior surface of the right gastrocolic omentum as a result of periduodenal inflammation, the right gastro-epiploic artery and the middle colic artery may lie very close together, and the colic artery may be inadvertently injured or severed when the distal section of the greater

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curvature is being devascularized and/or the duodenal area is being freed. Although this is a rare occurrence, it would necessitate the removal of that part of the transverse colon which would thereby lose its blood supply. Such accidents have been reported. Care must also be used in the area of the short vessels to the spleen because of bleeding produced by unnecessary operative trauma. All the remaining vessels should have ties which are secure and tight, of small calibre and which are tied at least several millimetres from the tip of the tissue; otherwise, postoperative bleeding may occur.

Physiology

The aim of surgery is to remove as far as possible the factors which allow, or predispose to, ulcer formation, both preoperatively and postoperatively, as well as remove the symptom-producing lesion, while, at the same time, preventing postoperative complications. The physiological facts as they apply to gastric resection are briefly as follows: (1) Duodenal ulcer has never been reported in the presence of pure pernicious anæmia (complete or true achlorhydria). (2) The pyloric mucous membrane contains no acid-secreting cells but it is the only part of the gastroduodenal tract which produces secretin, a direct precursor of hydrochloric acid. (3) The central four-fifths of the stomach—that is, the part which includes all the lesser curvature and 80% of the distal greater curvature—has the greatest amount of acid-secreting cells. (4) The fundus mucous membrane contains only a small amount of acid-secreting cells. (5) The physiology of the duodenum is not concerned with the formation of a duodenal ulcer. The physiology of duodenal ulcer is really the physiology of altered stomach secretion and function. (6) Seventy-five to ninety per cent of gastric acid secretion is psychic in origin and this psychic stimulation is carried to the stomach through: (a) the vagus nerves, (b) hormonal pathways. The latter mode of transmission is active through the posterior pituitary and adrenal glands and is a very important consideration in any therapy. Surgery cannot affect this, but it can reduce the stimulation from the anterior pituitary through the vagi. (7) The mechanical stimulation produced by food in the stomach, and intestinal hormonal stimuli, play a very small part in the production of acid, and from the surgical standpoint are not considered. (8) The

Fig. 1.—Illustrates the fulfilled anatomical and physiological principles necessary for a clinically satisfactory resection. The entire pylorus has been removed and is seen as a dark shadow just proximal to the distal transection; the ulcer is included in a small piece of duodenum, the entire lesser curve and 80% of the distal greater curve are in the specimen, and therefore none of the body of the stomach remains.

gastric contents normally leave the stomach *slowly*, through a *small outlet*. Every effort should be made to approximate this state postoperatively.

Recognizing these facts, the general principles of radical partial resection which must be fulfilled are as follows (Fig. 1): (1) the removal should include the entire pylorus, if it is safe to do so; (2) four-fifths of the stomach should be removed, which means almost all of the lesser curvature and 80% of the distal greater curvature; (3) the distal transection should include the ulcer, if it is safe to do so; (4) the anastomosis, whether anterior or posterior to the transverse colon, should be made in such a way that the postoperative conditions approximate as closely as possible the natural conditions before disease. These are, mainly, that the new stoma be as small as the normal pyloric outlet, and that food enter the proximal jejunal, and not the distal jejunal, segment (Fig. 3). This more closely approximates a Billroth I procedure, some form of which more closely resembles the normal and is thought by some to give the minimum of postoperative symptoms.

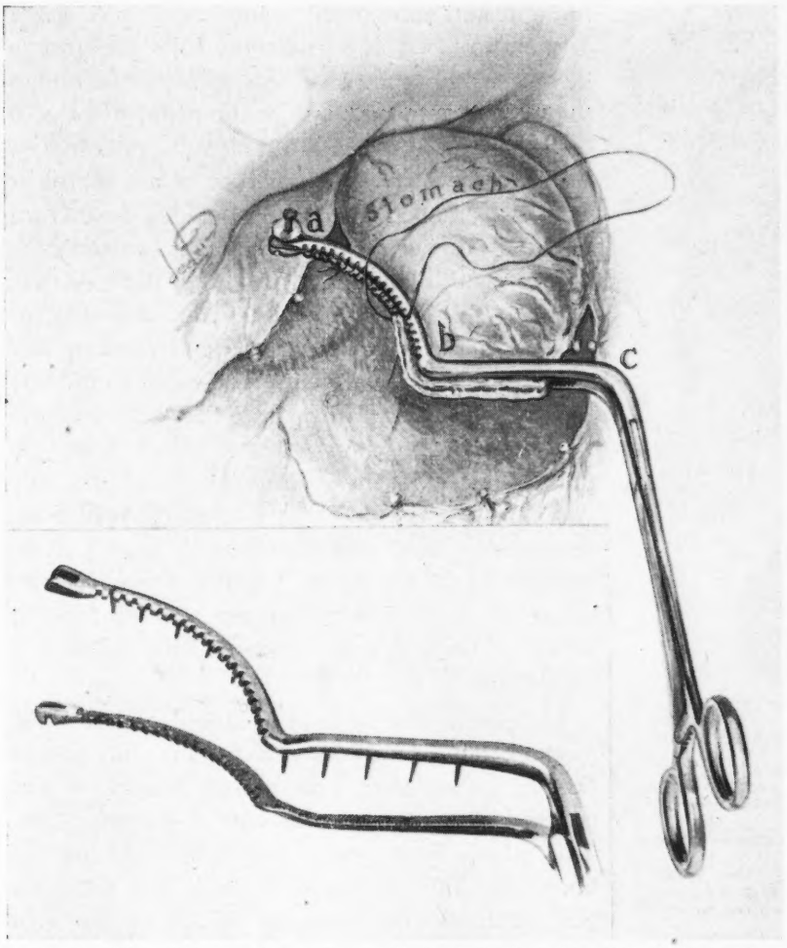

Fig. 2.—The clamp is shown open and applied. For the sake of demonstration, the clamp is applied lower than usual. The serrations for suturing and the pins for holding the tissue securely are clearly seen. The wider space between the transverse jaws is also in evidence. The pins penetrate the lower jaw.

5.—RESECTION

(a) *Decision Concerning Extent of Operation*

The extent and type of operation must depend upon how well the operator can use his own experience, rather than upon what he has read in the literature or seen other surgeons do. An operation which is less satisfactory than the best might be the safest under certain circumstances. Therefore the operator must ask himself, "What is the safest operation in my hands at this time with these conditions?" (an emergency; anæsthetic; any blood replacement; number of assistants; condition of patient; etc.). The answer to this question is the operation which must be done.

In 10 to 15% of all cases the distal line of transection will probably be made proximal to the pyloric ring, because of extensive disease in the pyloro-duodenal area. The less the experience of the surgeon, the greater should be the percentage of patients so treated. Whether the pylorus is going to remain either with or without its mucous membrane should be known before it has been devascularized.

An ulcer which is left in a turned-in duodenum will not bleed or reactivate if the other principles of resection have been adhered to. However, if not more than 50 to 60% of stomach has been resected, there is the possibility of the original ulcer showing activity again, and, what is even more important, the probability that an "anastomotic" ulcer may appear. The problem of how much of the pyloro-duodenal area is best removed should be easily solved by the proven value of duodenostomy, or some type of the newly advocated "body of the stomach resections" with gastroduodenal anastomoses, with or without pyloroplasty. Recent work has indicated that the pylorus may not be as important a factor in the cause of postoperative ulcer as previously thought. Nevertheless, if it can be removed with safety, it should not remain, unless this makes possible a better operation than could be done without it; e.g., if keeping the pylorus would allow gastroduodenal continuity in the presence of a wide gastric resection, it would be better to preserve it, either with or without a pyloroplasty.

Even though, in cases of doubt, a well-placed catheter in the duodenum reduces the possibility of a duodenal stump leak to a minimum, the greatest care is still necessary in closing this distal pathological tissue. Unseen dangers are common in this area if much manipulation is carried out in the presence of extensive pathological changes (pancreatitis, bleeding, bile leakage, non-suturable duodenum). A gastroduodenostomy is possible in only a small percentage of cases, because of the large amount of diseased tissue requiring removal. Too little duodenum is available.

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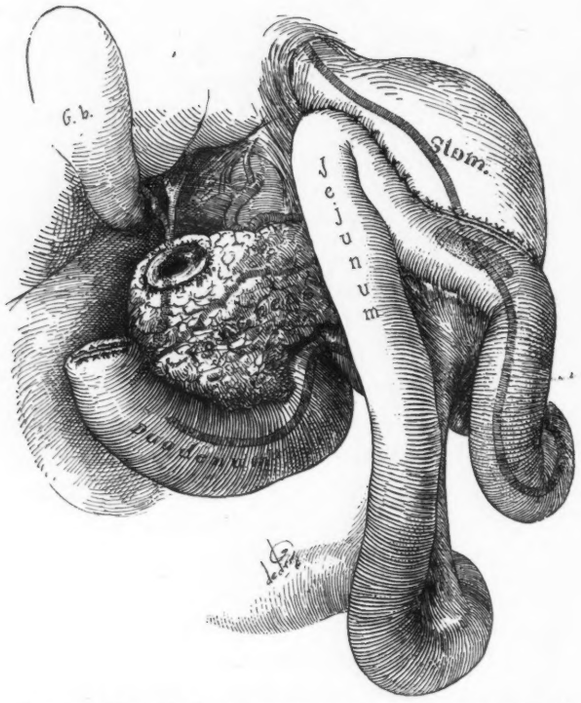

Fig. 3.—The finished operation. In this instance the duodenal transection is distal to the ulcer, which remains on the posterior pyloroduodenal wall denuded of mucous membrane. The small stoma is seen at the most dependent part of the gastric remnant, emptying into the proximal jejuno-duodenal segment. This small gastric pouch will enlarge. The distal jejunum is "tacked-up" along the new lesser curvature. The high transection on the lesser curve is well illustrated. The late Roscoe Graham considered this entire removal of the lesser curvature to be an integral part of the successful operation. When this is removed, gastro-jejunal ulcers do not occur postoperatively.

Vagotomy is rarely necessary if the resection has included most of the acid-bearing area of the stomach. This operation should not be considered as a simple one without danger.

(b) *The Pancreas*

The pressure of packs and retractors can produce pressure trauma to the pancreas, and may play a part in fatal postgastrectomy pancreatitis. In addition to this, the body and distal part of the pancreas can be traumatized when the left gastric vessels are secured from the anterior side. The left gastric artery should, therefore, be fixed only after the greater curvature has been devascularized and the stomach held forward. This produces the clearest view. One should have the greatest respect for the pancreas and its susceptibility to trauma because trauma means trouble.

(c) *The Duodenal Stump*

The closing of the duodenal stump is the most important single factor in the success or failure of this operation.[2] It demands much thought and care, even though the proven value of a well-placed duodenostomy tube has greatly increased the safety of this closure.[3] Whether the closure is to be made in the distal pylorus or in the proximal or distal duodenum, proximal or distal to the ulcer, and whether or not the ulcer is to be removed, should be decided as soon as possible. This is sometimes difficult to determine before manipulation and dissection have started, because this gives a clue to the difficulty of dissection and suturing. It is while dissecting and closing the duodenal stump that injury to the bile duct may occur, and it is here that bile peritonitis might be initiated without a leak from the duodenal stump, by unknowingly incising the common bile duct so that bile might leak postoperatively. Such trouble may or may not be recognized at the time. I place a clean white gauze pack around the stump and examine it before closing the peritoneum. Bile staining is thus easily seen.

The duodenum is usually closed by the open method. This produces less trauma and allows better hæmostasis. The closed stump is not covered, if at all, until the end of the operation. This allows better inspection before closing the abdomen. Anyway, such covering does not alter the intraduodenal pressure which is the real cause of the leaking.

If the Bancroft procedure is used, and too distal devascularization has been done, the blood supply might be removed to such a degree that too small a cuff of healthy pylorus remains for safe closure. A small piece of pylorus is difficult to turn in and is hard to close, because of the funnel shape of the tissue. The Bancroft procedure is not an easy operation and leakage is not uncommon. It is not an operation of choice.

Two sets of sutures, or maybe three, are used for closure. The edges have not been clamped so the tissue is not crushed and all bleeding points are clearly seen. The first line of suture is placed so carefully that if it were the only suture it should be sufficient to safely close the duodenum. This suture is 00 chromic catgut. The next set of sutures, which are of silk, comprises a rather large purse-string on each corner and one or two mattress sutures in the centre. This second set of sutures should in the ordinary circumstances be quite sufficient. If there is enough tissue, a third row is applied, again using interrupted silk. Too many sutures of

foreign material should not be used. Nowhere in the operation is it as important to remember the basic principles of suturing, namely that: (1) the prime aim of the suture is to approximate rather than to strangulate; (2) serosa must come to serosa without any intervening tissue; (3) tension must be absent; and (4) the tissue sutured must have sufficient blood supply. More than one duodenal stump has "blown out" because too many sutures have been used and/or tied too tightly. The duodenum may also be approximated for closure by a well-placed, deeply set, purse-string suture, or a Connell-type suture over the clamp if one has been used. This first suture is a double 0 chromic catgut. The second closing suture material is, as before, silk and is applied interruptedly. The closed stump may or may not be fastened to surrounding tissue.

When operating for hæmorrhage, the pylorus and/or duodenum will often have to be opened immediately. Either a finger tamponade or a finger on top of a gauze tamponade will control bleeding while the dissection is done on the outside.

It is always wise to place a drain down to the duodenal stump in any doubtful case. A Penrose drain is better than a urethral catheter, which is more likely to form a tract which will seal itself off from the abdominal cavity and will, therefore, drain only the end of this sinus tract.

(d) *The Gastric Removal and Closure, and the Gastro-Jejunal Anastomosis*

This important part of the operation is divided into sections as follows: (1) the amount of stomach removed; (2) the new lesser curvature; (3) the position and size of the new stoma; (4) hæmostasis and possible hæmatoma at the site of the anastomosis; (5) some factors concerning the proximal jejunal segment; (6) the anastomosis *per se*; (7) an antecolic or retrocolic anastomosis and its implications.

1, 2, 3. The prime requisites for successful resection for duodenal ulcer have been described above (applied anatomy and physiology) (Fig. 1). It is better to take "a little too much than much too little" stomach. Extra-gastric ties should be of small calibre and very secure. Bleeding from one of these tags may be the cause of rather severe postoperative hæmorrhage.

Some surgeons remove the omentum with the stomach. Such a procedure is thought to save some time, and may allow the anterior gastro-jejunal anastomoses to be made six to ten inches (15 to 25 cm.) closer to the duodenum because a much shorter loop of proximal jejunum is necessary.

Hofmeister's procedure of closing the upper section of the gastric segment to form a new lesser curvature has many benefits and this is easily and safely done by using the clamp as seen in Fig. 2. This clamp also allows one to make the stoma as small as desired[4] (see Addendum).

The size of the new opening should approximate as closely as possible to that of the normal and physiological (preoperative) pyloric sphincter. This allows the most use of the stomach mixing and reservoir function, and permits food to enter the small bowel slowly, as it does normally, through a small outlet. The completely emptying gastric pouch is one of the few arguments in favour of the wide Polya type of anastomosis. The opening which I use is rarely more than an inch, and sometimes as small as one-half an inch, by internal measurements (Fig. 3).

The first step in making the new lesser curvature is the proper application of the clamp[4] (Fig. 2) which outlines the size and shape of the remaining segment and the stoma (see Addendum and Figs. 2 and 3). The first suture is a continuous one of triple zero chromic catgut, using fine but hæmostatic bites. The needle is placed through the indentations in the clamp. When the clamp is removed the new lesser curve edge is buried by interrupted Halsted mattress sutures of fine silk which are placed 5 mm. apart. These silk sutures are applied at least 8 to 10 mm. from the hæmostatic continuous suture to allow for a turn-in without tension on the serosal surfaces (Fig. 3). In the event of a high gastric ulcer which is better not removed, the transection will be made on the lesser curvature, below the ulcer. The tissue containing the ulcer may be turned-in after enough tissue has been left for suturing. In these cases the ulcer will usually heal. This is known as the Madlener operation.

4. Care should be taken that no hæmatoma forms postoperatively in the cut edges. Careless attitudes may allow postoperative bleeding to occur. All bleeding points must be securely tied with fine sutures (000 plain), particularly in the anastomosis edge, and not left for "time and

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chance" to stop them. A large hæmatoma in the new stoma may produce obstruction and if the bleeding is into the gut, reoperation may be necessary to control it. Unless intestinal needles and small sutures are used, the œdema and swelling might be great enough to produce post-operative symptoms and/or predispose to infections. With the type of clamp herein described, there is no crushing and necrosis of the tissues, and the cut edges of the stomach are held secure enough by the pins in the instrument so that clean and straight cutting produces an edge which tends to be easily sutured and gives a minimum of reaction in the healing stage.

5. It seems that the proximal segment of jejunum should be the segment into which the food empties from the stomach pouch (Fig. 3). When food stays in the stomach for a longer time, as it does with a small stoma, it is given better mixing and digestion facilities, and remaining in the duodenum and upper jejunum (proximal segment) allows for still further and normal action of the digestive mechanism before being discharged into the distal jejunum. The proximal segment thus acts as a good gastric reservoir. This attempt to reproduce the normal is unsuccessful if the food, on leaving the stomach quickly, through a large opening, enters the distal segment of jejunum so that it is propelled distally at once, thereby escaping the normal duodenal and proximal jejunal digestive actions. It also predisposes to postoperative symptoms associated with the so-called "dumping syndrome". This group of symptoms has never followed the technique as here described and used in more than 50 cases.

6. Just as the control of the duodenal stump is the most important factor in the immediate prognosis, so the gastro-jejunal anastomosis is the most important single factor concerning the future prognosis. Whether or not the patient develops such complications as the dumping syndrome, stomal obstruction, postoperative retention gastritis, mechanical small bowel obstruction, or maybe even jejunal ulcer, very often depends upon how this mechanism is made to work. The principles of making all anastomoses apply here as elsewhere (Fig. 3). There really should be very little trouble if one's mind is kept on the subject at hand, and sutures of small diameter are used. One of the common mistakes is the use of too large and too many sutures. If factors are such that one is fearful of obstruction in the stoma, it is better to do a jejunostomy at once, rather than wait until one becomes necessary.

The first (outer posterior) row of sutures in the jejunum should be placed away from the anti-mesenteric line and toward the head side of the mesentery, so that when the outer anterior (last) row of interrupted sutures are placed they will not encroach upon the other side of the mesentery, and the incision in the jejunum will then have been well placed in the midline. The anastomosis should be examined in its entire circumference.

If a nasal tube is used, it is threaded into the proximal bowel for a distance of five to ten inches (12-25 cm.). New holes may have to be cut so that suction is also available in the gastric segment. Allen and Welch advocate the routine use of two jejunostomy tubes, one going backward into the stomach for decompression, and the other catheter entering the distal jejunum for feeding. This is an excellent precautionary measure. Such tubes have to be "Witzelized."

7. Whether the anastomosis should be anterior or posterior to the transverse colon may always remain debatable in some cases. There are certain instances in which the operator has no choice, as for example in the person whose mesentery does not allow the jejunum to be brought through satisfactorily (rare in ulcer patients), or in those cases where the transverse mesocolon is scarred from a previous operation, or if the transverse colon has been resected, or if the blood supply prevents the jejunum being brought through in a non-obstructing fashion. If the patient is very young and has a large psychic element associated with gastric acid secretion, the closer to the duodenum the gastric contents can enter the jejunum, the better. In such instances one of the techniques establishing gastro-duodenal continuity is the best procedure, if possible. More often, however, it is probably wiser to perform a posterior anastomosis, using as short a loop of jejunum as possible. If the ligament of Treitz is incised, a shorter jejunal segment is obtainable and the gastric contents thereby enter the jejunum not very far distal to normal. On the other hand a very high resection followed by a retrocolic anastomosis permits more chance of obstruction of the two long jejunal loops, and may even predispose to stomal obstruction by tension. Even short loops may become so obstructed. The chance of a loop of

jejunum herniating through the rent in the mesocolon or posterior to the anastomosed loop, also helps to make the posterior anastomosis potentially more dangerous. However, from the theoretical standpoint, the most physiologically safe operation in the very young person is probably made with the Hofmeister type of resection and posterior anastomosis using a very short segment of proximal jejunum. Nevertheless, from the practical standpoint the Hofmeister type of closure of the gastric stump, plus a wide gastric resection and an anterior anastomosis, is gradually becoming the operation of choice. If the principles of resection as described above are adhered to, postoperative ulcer is very rare, and obstructive states are much less frequent than in the posterior colic anastomoses.

(e) *Final Inspection*

The final inspection (review) is a very imperative part of the operation. It takes only a few moments and in some instances it may allow for corrections or additions which institute preventive therapy and insure safety. More than one postoperative complication could have been prevented had this final inspection been made. Such inspection includes the duodenal stump and the gauze pack; the rent in the mesocolon; the entire circumference of the gastric anastomosis; possible bleeding points in the incised areas; the direction and tension of the jejunal loops; the spleen (trauma?); the position of the nasal tube, and also looking for a possible sponge—even if the "count" is said to be right. And then all blood must be removed from the cavity, particularly the splenic area. Blood makes an ideal medium for infection and may initiate a subphrenic abscess even after a technically perfect operation.

6.—CLOSURE OF THE ABDOMEN

Closure of the abdomen is often a neglected, but always an important, part of any operation. Disruption of an upper abdominal wound, which may be initiated by coughing and other pulmonary complications, is a dangerous potentiality. Even a well-sutured wound needs support against coughing. The role of the anæsthetist is very important. He must be sure that the patient "sleeps off" the anæsthetic, rather than "coughs or vomits it off". If there is much straining during this closing and dressing period, the wound may actually have started to disrupt while the patient is still on the operating table.

Closure of the peritoneum is of paramount importance in the prevention of disruption. Many advocate interrupted sutures in the peritoneum. Although this may not be necessary, interrupted ties in the continuous suture line at equidistant points in the peritoneum are very well worth while. Then, if the continuous suture breaks or becomes undone, the whole peritoneum does not separate. Probably the most common mistake made in closing the peritoneum is the use of too much and too large suture material. (Some operators still use double sutures, thinking this gives twice the strength. It actually reduces it greatly.) It is wise to make the skin incision a little longer than the fascia incision, and the fascial incision a little longer than the opening in the peritoneum. This allows the ends of the wound to be sewn in plain view.

The fascia should be sewn with interrupted sutures. Number zero chromic catgut or, at the most, a number one chromic catgut should be used. However, non-absorbable sutures are probably better and are usually indicated in a non-infected wound. Experimentally, wire gives the least reaction of all suture material but tears tissues more easily. Non-bacterial inflammatory reaction (œdema, congestion, swelling), which is part of the absorption process, may be a real cause of non-union. It is important to know how to use the sutures as well as how to choose them. When disruption occurs, it should be considered to be the fault of the surgeon and not the fault of the material used. Irrigation of the wound with hot saline before the subcutaneous sutures are inserted is often of great value, particularly in very obese patients. It seals off small bleeding points, and floats out many particles of fatty tissue.

The subcutaneous tissues, particularly, should be brought together loosely in such a way that all the dead space is obliterated. Thus pockets of serum cannot collect and become infected.

Longitudinal wire sutures which are placed subcutaneously, and which can be removed at the end of 10 days by simply pulling them out at the end of the wound, undoubtedly leave a wound with the least reaction, and therefore the most healing qualities and the least pain. Wire probably does not give the security of the interrupted non-absorbable suture; we have used a combination with much success. The skin is closed with interrupted sutures of fine silk or continuous triple zero plain catgut.

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It is not wise to put on too many dressings. One single layer of fine gauze is usually sufficient, with or without a plastic covering. The smaller the amount of dressing against the skin, the more value one gets postoperatively from heat applications, and such heat is very soothing. Large dressings also tend to keep the postoperative perspiration against the skin and force it into the wound and, in all probability, play some part in the production of many wound infections.

Those who argue for or against abdominal drains probably have much in their respective favours. Drains must always leave the abdomen through a separate stab wound, and drain into a separate dressing. They must be examined regularly and twice daily.

ADDENDUM

A NON-CRUSHING BUT FIRMLY HOLDING CLAMP* FOR THE SIMPLIFICATION OF GASTRIC RESECTION

This instrument was designed to simplify and make more adequate the operation of gastric resection, and to allow a wider removal of the lesser curve area, while still retaining a good stomach reservoir.

Some of the advantages provided by the clamp include:

1. The saving of healthy non-crushed gastric tissue for the gastrojejunal or the gastro-duodenal anastomosis.
2. The easy placement of deeply and well-set hæmostatic sutures in partially crushed tissue along the new lesser curve, through the serrations in the curved jaw, before the clamp is removed. This allows for the best approximation and a minimum of bleeding, which is particularly helpful if the left gastric artery has not been severed. Hæmostasis is easily confirmed as soon as the clamp is removed.
3. The clamp handle is a good manipulator.
4. The lesser curve "turned-in" tissue is pressed by the clamp, rather than crushed. The jaws hold the stomach wall securely enough to prevent bleeding, while the pins prevent the gastric wall from slipping. The tissue is thus cut cleanly and sharply, and is not devitalized. This makes suturing easier and safer.
5. The high lesser curvature area is very well held and controlled.
6. The clamp is easy to use and reduces both the difficulties and the time of operation.
7. The greater ease of transection in those cases of high gastric ulcer.

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RÉSUMÉ

Dans les commentaires qu'il offre aux opérateurs, au sujet de la gastrectomie, l'auteur recommande d'abord une incision large, paramédiane gauche. L'exploration de la cavité abdominale doit être faite d'une manière systématique en vue de déceler non seulement les affections connexes, mais aussi, celles qui n'ont aucun rapport à la lésion principale et qu'il arrive parfois de découvrir par pur hasard. Dans la préparation du champ opératoire, la rétraction manuelle semble être plus avantageuse que la rétraction mécanique. La connaissance approfondie de la distribution du champ vasculaire, ainsi que des repères anatomiques normaux, en plus des modifications qu'ils peuvent subir au cours de processus pathologiques, est d'importance primordiale. Il ne faut jamais perdre de vue que la physiologie de l'ulcère duodénal est celle de la sécrétion gastrique anormale. La résection doit comprendre, si possible, le pylore, la petite courbure, les 4/5 de la grande courbure dans sa partie distale, et l'ulcère. L'anastomose devrait créer un état postchirurgical se rapprochant le plus possible de la normale. Il importe de baser le choix de la technique opératoire sur les conditions qui prévalent au moment de l'intervention et la moindre d'entre elles n'est, certes, pas l'expérience et la dextérité de l'opérateur. Il faut traiter le pancréas avec tout le respect qu'il mérite car il supporte mal les traumatismes et peut causer des complications sérieuses. Dans le surjet du moignon duodénal, une attention particulière doit être portée au cholédoque. L'auteur met en garde contre les points trop serrés qui étranglent les tissus au lieu de les rapprocher. La nouvelle ouverture pratiquée dans l'estomac cherche à reproduire d'aussi près que possible dans ses dimensions le sphincter pylorique normal. Il importe d'éviter qu'elle ne soit trop grande afin de prévenir le syndrome du "dumping". Si l'ulcère est haut situé sur la petite courbure, on peut le laisser en place (opération de Madlener). Il faut à tout prix éviter la formation d'hématomes sur la tranche des parois de l'estomac. D'excellents résultats ont été obtenus en employant un double tube passé par le nez et dont une extrémité s'arrêtant dans l'estomac permet la décompression par suction, et l'autre se rendant jusqu'au jéjunum distal, sert à nourrir le malade. En théorie, l'intervention la mieux fondée au point de vue physiologique, chez les sujets jeunes, est celle de Hofmeister, comportant une anastomose postérieure et un segment de jéjunum proximal gardé le plus court possible. En pratique, cependant, l'anastomose antérieure gagne de plus en plus de faveur auprès des chirurgiens. La fermeture des parois mérite autant d'attention que les autres phases de l'intervention. L'erreur la plus fréquente consiste à fermer le péritoine avec des points trop nombreux et des sutures trop fortes. Les aponévroses doivent être fermées avec des points interrompus. Un pansement trop volumineux gêne les applications de chaleur que l'on pourrait employer contre la douleur, et empêche aussi l'évaporation de la sueur. Il est donc préférable de s'en tenir à une seule épaisseur de gaze dans la plupart des cas.

M.R.D.

*Macdonald, Dean: *Am. J. Surg.*, **87**: 934, 1954. Made by the J. Sklar Manufacturing Co., New York, N.Y.

ARE YOU A SURGEON?

If you are, then this note is intended for you. Even if you only use a scalpel or suture occasionally, you should know what is going on in Canadian surgery. From October 1 you will be able to inform yourself more easily of advances in the Canadian surgical scene, because on that date the first issue of the quarterly *Canadian Journal of Surgery*, published by the Canadian Medical Association, will appear. Every effort has been made to ensure the support of Canada's leading surgeons. To make a financial success of the *Canadian Journal of Surgery* certain, we need you as a subscriber. On page 416 of the issue of March 1 you will find a coupon which you should mail, together with a $10 cheque, to ensure your receiving this journal from the very first number.

SEAL FINGER OR SPECK FINGER

A CLINICAL CONDITION OBSERVED IN PERSONNEL HANDLING HAIR SEALS

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SEAL FINGER or speck finger (Scandinavian blubber-finger) is the idiomatic name for a severe type of finger infection found in seal hunters and workers in the seal fishery. Its etiology is unknown but it is associated with the handling of adult hair seals. It manifests itself as a cellulitis which goes on to arthritis with eventual joint dissolution and healing by ankylosis. Seal finger has received little attention in American journals but considerable literature on the subject is available in various Scandinavian publications. It is an extremely widespread disease, being known in both the Arctic and the Antarctic, in fact everywhere man kills seals.

Although the infection has been known to sealers for generations, it was apparently first described by Bidenknap (Norway) in 1907.

My experience with the disease has been limited to 23 years with the Newfoundland sealers. It is definitely an occupational hazard. Rodahl claims an incidence of 10% in Norwegian sealers working off Spitsbergen in 1950. There are no accurate figures for Newfoundland, as many of the cases occur in sealers working from their local harbours and are never reported. My impression after two voyages to the ice fields in sealing vessels is that the incidence does not exceed 3%. It is said to be extremely rare in the Pribiloff Islands. If this were true, it would be an interesting observation, for it is chiefly the fur seal that is taken there, in contrast to the hair seal taken in the Atlantic; this may provide an epidemiological clue.[2] The finger infections which are common among Newfoundland fishermen and lobstermen do not resemble seal finger. Hoygaard claims that Greenland Eskimos appear to possess immunity not possessed by the white man working with the same seals. Seal killing is seasonal in Newfoundland, and so is the crop of seal fingers. Between 600 and 700 sealers leave St. John's, Nfld., early in March and go north either off the coast of Labrador or into the Straits of Belle Isle. The young seals are killed by clubbing until they begin to roll overboard from their ice pans. Then the gunners go after the old ones. This is usually around the first of April. Within a week to two weeks after this date complaints of bad fingers appear.

The incubation period of seal finger has been estimated as anywhere from three days to five weeks, but seven to 15 days seems more reasonable, according to my experience.

SYMPTOMS AND SIGNS

The first signs of the disease are redness and swelling around one of the interphalangeal joints, usually on the index or middle finger of the left hand (in righthanded persons). The finger is very painful and throbs. As stiffness due to the soft tissue cellulitis increases, the skin becomes a shiny purplish red, tenderness is marked and the finger is boggy to palpation. Frank pus is not present; incision reveals only a serosanguineous discharge. The whole hand presents marked pitting œdema but is not reddened. There may be a slight amount of lymphangitis and slight enlargement of the regional lymph nodes, but these are not tender and do not suppurate. At this time—four to five days after onset—there may be slight general malaise, but not enough to take away a sealer's appetite. There may be a degree of elevation in temperature (sedimentation rate and white cell count may be slightly elevated but are of no significant diagnostic aid). From the first week or so after onset the pain and throbbing gradually decrease, but the finger does not appear to improve and, usually between the second and third weeks after onset of symptoms, crepitation appears over the affected joint on passive motion. Radiographs taken at this time will show narrowing of the joint space and some degree of subluxation. Pain diminishes rapidly but swelling persists for months. In four to six months the finger is usually healed with complete ankylosis of the joint held in 30-40 degree flexion, and tends to remain a "cold" digit thereafter.

ETIOLOGY

The etiology of this condition is not yet proven, although several organisms have been isolated and suspected. Thjotta, Kvittingen and Olds have reported finding a Gram-positive micrococcus in specimens. Thjotta has also suggested a virus and several investigators have suggested *Erysipelothrix rhusiopathiæ*, the organism of swine erysipelas. Professor E. G. D. Murray of McGill University very kindly did extensive studies on an amputated seal finger sent him by the author, and his findings are as follows:

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"The following is a report on the specimen submitted to this laboratory for diagnosis on June 15, 1953.

"Patient—S.S., aged 39, Nippers Harbour, Nfld. Specimen—Amputated index finger. Preservative—Ice.

"The specimen which was shipped by air express on June 15, 1953, was received in excellent condition (frozen) at this laboratory on June 16.

"The specimen was removed from the container and washed in sterile saline. Portions of tissue and bone were fixed in Zenker's fluid and formol-saline for sectioning. Several portions of tissue were ground in a micro grinder and a Waring blender in preparation for bacteriological examination and egg and animal inoculations.

Histopathological Examination.

"*Description.*—Histological preparations reveal loose and compact collections of inflammatory cells scattered throughout the dermis and subcutaneous tissue. These foci consist chiefly of lymphocytes; along with these are smaller numbers of plasma cells and occasional macrophages. No multinucleated giant cells are anywhere seen. In and about these cellular areas slight fibroblastic proliferation is apparent.

"One section includes tendon and bone. The tendon sheath is diffusely infiltrated by chronic inflammatory cells and the periosteal fibrous tissue is involved in the process at some points. The bone itself appears intact throughout.

"*Diagnosis.*—Non-specific inflammation of dermis, subcutaneous tissue, tendon sheath and periosteal fibrous tissue.

"*Comment.*—The histological picture here is simply that of a fairly extensive chronic inflammation and provides little or no specific information as to the nature of the etiological agent involved.

Bacteriological Examination.

"1. Several different types of media for the isolation of bacteria and fungi were inoculated, incubated at room temperature and aerobically and anaerobically at 37° C.

"2. Eight-day-old fertile eggs were inoculated by the yolk sac and allantoic cavity route with the emulsion of tissue previously treated with 1000 i.u. of penicillin and 2500 gamma of streptomycin.

"3. Six mice, three by the intraperitoneal and three by the subcutaneous route, were inoculated with a culture of the Gram-positive rod isolated.

"4. The remaining whole portion of the finger and the emulsion were stored at 4° C. in order, perhaps, to facilitate the possible isolation of an organism of the genus *Listeria*.

Results.

"1. No pathogenic fungi were isolated from the emulsion. These cultures were checked for a six-week period. Several species of bacteria were isolated. Each colony noted on the plate was identified. They are as follows: (a) coagulase-negative *Micrococcus epidermidis*; (b) *Streptococcus mitis*; (c) *Streptococcus salivarius*; (d) a diphtheroid showing marked banding and granules.

"The significance of the above organisms, especially the Gram-positive rod, is impossible to ascertain. It is interesting to note however that Svenkerud, Rosted and Thorshaug (*Nord. Vet. Med.*, 3: 147, 1951) have been able to isolate from a lesion in seals resembling swine erysipelas a Gram-positive rod-shaped bacterium which was not pathogenic to experimental animals including pigeons and pigs. Whether or not the authors believe this particular organism may be involved in 'seal finger' they do not say. Due to the fact that the organism isolated at this laboratory grows more rapidly on media containing oleic acid, it can be suggested that it might well have originated from the skin (M. R. Pollock *et al.*, *J. Path. & Bact.*, 61: 274, 1949). A broth culture of the Gram-positive rod was prepared as an inoculum for mice.

"2. All the fertile eggs survived for the first 72 hours of incubation. It may be interpreted from the above that no agent, lethal for the growing chick embryo, and not susceptible to the antibiotics, was present in the ground emulsion of the infected finger. Egg inoculation was carried out because Thjotta suggested a virus as the etiological agent of seal finger (quoted by F. K. M. Hildebrand, *Lancet*, 1: 680, 1953).

"3. One of the mice inoculated intraperitoneally died on August 18, 1953. A pure culture of *S. typhimurium* was isolated from several of the abdominal organs and the animal was probably a carrier. The other five mice are still alive and healthy to date (November 17, 1953).

"4. At weekly intervals for a period of some weeks aliquot amounts of the refrigerator-stored material were plated out. Over this period several organisms were isolated. One was thought to be a member of the genus *Nocardia*. Another organism isolated after several weeks of storage was a Gram-positive rod which liquefied Loeffler's serum medium. This organism was classified as a member of the genus *Corynebacterium*. It is very difficult to assess the significance of these isolates. None is a known pathogen and after such a long period of storage and frequent handling of the material the possibility of air contamination cannot be overlooked. At no time was an organism resembling a member of the genus *Listeria* or a member of the genus *Erysipelothrix* isolated."

From the above results it appears that this attempt to isolate the causative organism from this diagnosed fresh specimen of "seal finger" was not successful. However, the possibility that two or more organisms generally considered as non-pathogens alone or symbiotically may be involved should not be ruled out.

PREVENTION

There is no doubt that "seal finger" is preventable to a large extent. Improved hygiene, protection of the hands and care of any cuts and abrasions are certainly to be recommended. The fact that a high percentage of the lesions occur on the first two fingers of the left hand suggests direct trauma, possibly incurred by inserting the fingers through the palpebral fissures of the pelts when it is necessary to move them for storage or any other reason. This the sealers do usually without gloves. They are provided with metal hooks for this purpose but do not use them.

TREATMENT

Heat, splinting and amputation were the only procedures available until the advent of sulfonamides. Many types of poultice were applied and many measures for local heat.

Seal finger is usually contracted in late April or early May. The patient wanted to go fishing in late May or June, as soon as the ice conditions permitted. He knew that if the finger ever did get well it would be stiff and cold. Therefore, he demanded amputation in order to be able to do his work and there was nothing to be gained by refusing him this relief.

Sulfadiazine saved a few fingers. Later penicillin proved more effective and aureomycin still better. All treatment must be started as soon as possible, because even if healing does occur after partial dissolution of the joint there will be some residual crippling.

Sixteen to 18 doses of aureomycin (250 mg.) every 6 hours are usually sufficient. Heat is not required, as the pain quickly subsides, and the finger is well and functional within a week to 10 days. Aureomycin appears to be the drug of choice at present, though it is quite possible that some newer broad-spectrum antibiotic may be even more effective. Amputation will be required in the future only if antibiotic treatment is not available early.

CONCLUSIONS

There appears to be a specific disease which is contracted by man when in contact with seals of several different species. It is an occupational hazard to those employed in the "seal fishery". It is preventable to a large extent, and treatment is now fairly satisfactory if started in an early stage.

Its etiology has not been satisfactorily proven.

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RÉSUMÉ

Le contact des poils de phoques dans la manipulation des peaux peut donner lieu à une infection des doigts qui se manifeste par une cellulite, voire même une arthrite allant jusqu'à la destruction de l'articulation et guérison par ankylose. Cette affection fut décrite pour la première fois par Bidenknap, en 1907. L'incidence chez les chasseurs de phoques de Terre-Neuve est d'environ 3%. Haygaard prétend que les Eskimos du Groenland posséderaient une immunité naturelle à cet égard. La maladie apparaît environ deux semaines après le début de la chasse et s'installe par une rougeur et un gonflement des articulations interphalangiennes, surtout de l'index et du médius de la main gauche chez les droitiers. La peau tendue et lisse est hyperémique. Les doigts sont très sensibles et la main entière peut être œdématiée. La lymphangite ne se produit que très rarement et jamais n'a-t-on rapporté d'adénite suppurée. Les répercussions systémiques sont de peu d'importance. La douleur lancinante commence à se dissiper graduellement vers la deuxième semaine. L'apparence ne s'améliore guère cependant et vers la troisième semaine on peut produire des crépitations articulaires à la flexion. La guérison se complète vers le sixième mois donnant un doigt rigide, ankylosé dans une position de flexion de 30° à 40°. L'étude bactériologique approfondie d'un spécimen chirurgical ne donna aucune conclusion définitive quant à l'étiologie de l'infection. L'application de mesures préventives basées sur des précautions hygiéniques et le traitement précoce des traumatismes aux doigts a déjà commencé à porter fruit. Chez les cas déclarés, les sulfamidés et la pénicilline ont donné de bons résultats qui ont cependant été dépassés par ceux que produit l'auréomycine. Grâce à ces agents thérapeutiques, la guérison est atteinte en une dizaine de jours et la fonction est conservée intacte. M.R.D.

THE SOLITARY PULMONARY NODULE

A report by Davis, Peabody and Katz (*J. Thoracic Surg.*, 32: 728, 1956) sets forth the result of a study initiated in 1946 concerning the significance of the solitary pulmonary nodule. The series consists of 215 non-calcified pulmonary nodules, personally resected by the authors, and illustrates both the strong malignant propensity of these nodules and the improbability of distinguishing the benign from the malignant lesion by any means short of thoracotomy.

In this study, 47% of solitary pulmonary nodules were malignant, 37% being bronchial carcinomas. All the clinical, laboratory and roentgenologic data were elaborately analyzed, and no sign was found sufficiently reliable to justify continued medical observation, except for the possible one of calcification within the nodule. However, the writers feel that minimal calcification within a solitary pulmonary nodule, especially when no more than a fleck or two, is unjustifiable grounds for assuming it to be benign. There are, however, certain patterns of calcification that render the possibility of malignancy so slim that further observation seems warranted. These include those nodules with a large central calcific core and diffuse calcific stippling, those with an inner ring or outer rim of calcium, and those that are completely calcified. In this survey, bronchial carcinomas and granulomas together comprised 75% of the total nodules.

In predicting survival of patients with solitary nodules which turn out to be bronchial carcinomas, the cell type seemed to have far less influence than did either the presence of symptoms or the time lapse between radiographic discovery of the lesion and operation. It would appear that the patient with a small solitary circumscribed asymptomatic bronchial carcinoma recently detected in a fortuitous chest x-ray has a 75% chance of surviving five years if operated upon promptly. Lobectomy appears to be an adequate cancer operation in properly selected such cases.

Re-examination of tissue blocks in cases previously diagnosed as "tuberculomas", and the use of special staining techniques, have revealed that 55% of the granulomas studied contained *Histoplasma* and 7% *Coccidioides*, in contrast to only 17% in which a tuberculous etiology could be established.

The authors conclude that every solitary, noncalcified pulmonary nodule demands thoracotomy; that for those with bronchial carcinoma the absence of symptoms and promptness of surgery may determine the chance for cure; and that careful histological study of pulmonary granulomas will reveal the majority to be of fungal rather than of tuberculous origin.

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A STUDY OF INFANTILE COLIC

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INFANTILE COLIC is a symptom complex characterized by recurrent attacks of crying or screaming, occurring in infants under the age of three months, in whom there is no obvious cause for these attacks, such as improper feeding or gross physical defects. The crying is characteristically worse in the evening, but in some cases may occur at any time of the day or night. The crying is usually rhythmic in nature, recurring every 5 to 10 minutes, but it may be continuous over a period of a few hours. During severe attacks the infant draws his knees up, tenses his whole body, sweats profusely, and appears to be in pain. There are gradations in the severity of the condition from the "fussy" baby to the infant who drives his parents to distraction. The symptoms usually disappear by the age of three months, and for this reason the condition has sometimes been referred to as "three-month colic".

Considering the frequent occurrence of colic in young babies, the literature on the subject is not large. Illingworth[1] has drawn attention to the fact that there have been few clinical studies in which a group of babies suffering from this disorder have been compared with a group not so afflicted. The fact that colic is a symptom and may have several causes, some of which are unknown at present, has been responsible for many divergent views as to its nature, and this in itself suggests that there is a need for further information and study.

The purpose of this paper is to present a comparison of 100 infants suffering from colic with 100 infants who were not so afflicted.

METHOD

From the office records of a pædiatric practice, case notes were selected at random to provide two groups of records. Common to both groups were the facts that they had both been seen by one of two pædiatricians within a few weeks of birth; that the infants had been seen at regular intervals for at least six months; and that when first seen all infants were free of obvious physical disease. The study group consisted of 100 infants who suffered from colic as defined in the introduction to this paper. In addition all these infants were treated for their symptoms, usually by sedation with phenobarbital. The control group consisted of 100 infants some of whom suffered from occasional fussy periods, but none of whom required treatment designed to relieve colic.

Approximately 45% of the infants in each group were followed up for five years or longer.

A comparison was made between the two groups of sex incidence, method of feeding, weight gain, gastro-intestinal disorders, incidence of allergic manifestations, nervous and emotional factors in mother and child, and the family history of colic. In addition the records of infants with colic were analyzed with regard to the severity of the symptoms, seasonal incidence, age of onset, and periodicity of the screaming attacks.

SEX INCIDENCE

There was little difference in the sex distribution of the two groups. Of the infants with colic, 54 were male and 46 were female. Of the control infants, 45 were male and 55 were female.

METHOD OF FEEDING (Table I)

The infants were placed in one of five groups according to the type of feeding they received.

Group 1.—Those infants who were entirely breast fed from birth until the age of three months.

Group 2.—Those infants who were initially breast fed but who later required supplementary or complementary feeding with an evaporated milk formula.

Group 3.—Those infants who were initially breast fed but who later required supplementary or complementary feeding with a whole milk formula.

Group 4.—Those infants who were fed an evaporated milk formula from birth.

Group 5.—Those infants who were fed a whole milk formula from birth.

The differences between the two groups were slight. Thus 23 of the infants with colic were entirely breast fed from birth compared to 30 of the controls. Forty-six of the infants with colic received breast feeding plus formula compared to 33 of the controls. These differences were most likely due to the fact that many mothers of colicky babies believed the milk was disagreeing with their baby, and on their own initiative discontinued breast feeding or changed the type

TABLE I.

Age of onset of colic	*Infants with colic*	*Controls*
0 - 4 weeks	83%	
4 - 8 weeks	16%	
8 weeks and over	1%	
Method of feeding up to the age of 3 months:		
1. Entirely breast fed from birth	23	30
2. Breast fed + E.M. formula	31	21
3. Breast fed + W.M. formula	15	12
4. Entirely E.M. formula from birth	26	27
5. Entirely W.M. formula from birth	5	10
Average weight gains:		
Average birth weight	7 lb. 6 oz.	7 lb. 8 oz.
Average weight gain in 6 weeks	2 lb. 5 oz.	1 lb. 15 oz.
Average weight gain in 3 mos.	5 lb. 5 oz.	4 lb. 14 oz.
Average weight gain in 7 mos.	11 lb. 4 oz.	10 lb. 4 oz.
Average weight gain in 1 year	15 lb. 5 oz.	14 lb. 3 oz.

of feeding. Mothers with contented babies were much less likely to change the feeding.

In both groups vitamin drops were added to the feeding at the age of six weeks, and cereal at the age of two to three months. The addition of vitamin drops played little part in the etiology of this type of colic as 96% of the infants developed their symptoms before the addition of this supplement to their diet.

WEIGHT GAIN (Table I)

The birth weights of the two groups were similar. By the age of three months the infants with colic had gained on the average 6 oz. more than the controls. By the age of seven months the difference had increased to 1 lb. and this was maintained up to the age of one year.

TABLE II.

Allergic manifestations:	*Infants with colic*	*Controls*
Total no. of cases with allergic manifestations	21	15
Eczema	4	2
Transient skin rashes	13	9
Allergic rhinitis	5	3
Asthma	2	5
Reaction to inoculations	0	1
Nervous and emotional factors:		
Febrile convulsions	3	1
Breath-holding convulsions	1	0
Behaviour problems in childhood	10	7
Mental retardation	0	2
Emotionally unstable mothers	12	2
Family history:		
First baby	54	52
Second or subsequent baby	46	48
Siblings with colic	41	28
Siblings without colic	25	41

GASTRO-INTESTINAL DISORDERS

During the first three months of life 14 of the infants with colic and 10 of the controls suffered from persistent regurgitation or vomiting for which there was no obvious cause. In the same age group, five of the infants with colic and eight of the controls suffered from persistent constipation and five of the infants with colic and two of the controls suffered from recurrent diarrhœa. It was considered that these slight differences were of no significance.

ALLERGIC MANIFESTATIONS (Table II)

The allergic manifestations exhibited by the infants of both groups at any time in infancy or early childhood included eczema, transient skin rashes usually due to ingested foods, allergic rhinitis, asthma and reaction to inoculations. Twenty-one infants with colic and 15 control infants suffered from one or more of these conditions. The severest allergic manifestation encountered was asthma and this was more prevalent in the control groups. These findings suggested that allergy played little or no part in the etiology of colic in the study group.

NERVOUS AND EMOTIONAL FACTORS (Table II)

Four infants with colic subsequently developed convulsions. Of these, three suffered from febrile convulsions developing at the ages of 3½ years, 18 months, and one year respectively, and one developed breath-holding convulsions at the age of two years. One of the control infants developed febrile convulsions at the age of 21 months.

Minor behaviour problems which caused the mother to seek medical advice developed in later childhood in 10 of the infants with colic and 7 of the controls. In only two children from each group were the problems of sufficient severity to require referral to a psychiatrist.

Mental retardation was subsequently evident in two of the control infants.

Twelve of the mothers of infants with colic appeared to be emotionally unstable, in that they were tense, anxious women who worried excessively about their babies. Prolonged contact with these mothers confirmed the opinion that they were natural worriers, as they continued to be anxious over their infants' health long after symptoms of colic had ceased. Only two of the

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mothers in the control group conformed to such an emotional pattern.

FAMILY HISTORY (Table II)

The birth order did not appear to be related to the incidence of colic. Fifty-four of the infants with colic and 52 of the controls were first babies.

Infants with colic were much more likely to have siblings who suffered from colic. Forty-one of the infants with colic but only 28 of the controls had affected siblings. Forty-one of the controls but only 25 of the infants with colic had unaffected siblings.

INCIDENCE AND SEVERITY OF COLIC

Approximately 40% of all babies seen in this practice over the last few years have received treatment with phenobarbital for the relief of colic. Some indication of the severity of the colic can be gained from a consideration of the dose of phenobarbital required to control the symptoms. In 35% of these infants the colic was mild and they at no time exceeded a dose of 1/8 grain phenobarbital at any one feed. Another 35% were babies with moderately severe colic, and their dosage of phenobarbital did not exceed 1/4 grain at any one feed. The remaining 30% suffered from severe colic, and required individual doses of phenobarbital in excess of 1/4 grain. The incidence of severe colic was therefore estimated to be 12% of all babies seen.

SEASONAL VARIATION

There was no evidence of any seasonal variation in the incidence of the colic.

AGE OF ONSET OF COLIC (Table I)

In 83% of the infants, colic developed before the age of four weeks. Only one case developed colic after the age of eight weeks. The colic disappeared in 88% of cases by the age of three months and in no case did the symptoms persist beyond the age of five months.

PERIODICITY OF COLIC

There was a remarkable tendency for the colic to be most severe from 6 to 10 p.m. Forty-nine per cent of the infants showed this tendency. In 27% of the infants the colic occurred irregularly at any time of the day or night. In 14% the colic was most prevalent at night between 10 p.m. and 6 a.m., and in 10% the colic was most prevalent in the daytime between 6 a.m. and 6 p.m.

DISCUSSION

Illingworth[1] has drawn attention to the problems of infantile colic and reviewed the literature. In a comparison of 50 infants with colic and 50 infants who did not have colic, he concluded that underfeeding, overfeeding, errors of feeding technique, mismanagement, allergy, substances taken by the mother, or the swallowing of air played little or no part in the etiology of the condition. Radiological examination of the intestinal tract in seven severe cases provided no evidence that it was due to excess of gas in the intestinal tract. He considered that a localized obstruction to the passage of gas in the colon by spasm or kinking was the most likely cause of the attacks.

Wessel *et al.*[2] in a study of 98 infants defined the fussy infant as "one who, otherwise healthy and well fed, had paroxysms of irritability, fussing, or crying lasting for a total of more than 3 hours a day and occurring on more than 3 days in any one week." Forty-eight out of the 98 infants were "paroxysmal fussers" by this definition, and in 25 of these the symptoms were of sufficient severity to require medication. Twenty-six of 29 infants began their fussy periods before the age of four weeks, and in only six instances the fussiness extended beyond the age of three months. The important contributory causes were found to be family tension in 22 cases, allergy in six cases, allergy and family tension together in nine cases; there was no apparent cause in 11 cases.

The present investigation confirmed that the age of onset of infantile colic was in the first few weeks of life and that the condition terminated by the age of three to four months. It confirmed that there was no striking sex incidence or seasonal variation. It demonstrated that colic was at its worst from 6 to 10 p.m. in 50% of cases, but that there was no obvious reason for this. It also demonstrated that vomiting, diarrhœa, constipation and allergic manifestations were not unduly prevalent in infants with colic. The familial incidence was of considerable interest in that siblings of colicky babies were much more likely to develop colic than siblings of unaffected babies. First babies were not unduly predisposed to colic.

Infants with colic appeared to be hungry, and in this study their rapid weight gain was probably evidence of this. When they were allowed to take extra milk feedings, the majority of colicky infants experienced only temporary relief of symptoms. From this observation it would seem reasonable to suppose that the appearances of hunger are the result of and not the cause of colic. Certainly the type of milk feeding bore little relation to the causation of the condition. The fact that the termination of symptoms in the infants in this investigation coincided with the addition of cereal to their feeding at the age of three months suggested that the sensation of satiety derived from cereal may alleviate colic. The results, however, of the earlier feeding of cereal were disappointing as a therapeutic measure.

The role that the mother plays in the development of colic is hard to determine. The management of some of these babies throws a tremendous strain on the mother, and unless she is of a phlegmatic temperament she is likely to show signs of emotional strain before long. It was evident, however, that 12% of mothers of colicky babies, compared to 2% of mothers of control babies, were tense, anxious individuals who showed similar emotional characteristics long after their infants ceased to suffer from colic. These findings were in agreement with those of Wessel *et al.*[2]

Until the etiology of the condition can be determined, therapy can be only symptomatic. The management should consist in the exclusion of physical disease, the exclusion of food allergies in which symptoms are related to the ingestion of the offending food substance, and the allowance of liberal amounts of formula. The early addition of cereal to the feeding can be tried but will not always meet with success. The mother requires constant reassurance and guidance. If possible an attempt should be made to lessen tension in the home. In the more troublesome case phenobarbital can be of great benefit if given to the infant in doses of 1/8-3/8 grain by mouth 5 to 10 minutes before each feeding and continued if necessary for several weeks at a time.

The prevalence of colic, and the distress that it can cause to infant and parents, should be a sufficient stimulus to promote further investigation into the etiology and treatment of this pædiatric problem.

SUMMARY

1. A comparison has been made between 100 infants suffering from colic and 100 infants not so afflicted.

2. It seemed unlikely that sex of the infant, type of feeding, seasonal variation, or allergy influenced the onset or severity of the colic.

3. Factors which appeared to be related to the onset or severity of the colic were age, birth order, time of day, and emotional state of the mother.

4. The babies with colic gained weight more rapidly than the control babies.

5. Management and treatment of infantile colic are briefly discussed.

I wish to thank Dr. Harold Popham, without whose co-operation this study would not have been possible.

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RÉSUMÉ

Les coliques infantiles se manifestant par des crises de larmes et des cris chez des enfants de moins de 3 mois ne présentant par ailleurs aucune cause pathologique évidente pour expliquer de telles crises. Elles se produisent d'une façon rythmée à toutes les cinq ou dix minutes environ et peuvent durer plus longtemps. Elles sont quelquefois si violentes que l'enfant se tient en chien de fusil, transpirant à profusion et donnant l'impression de souffrir gravement. L'auteur de cet article fait part de l'étude qu'il a faite de cent enfants affligés de coliques, et comparés à cent autres qui n'en avaient pas. Les deux sexes sont également frappés; le genre de lait de la diète ne semble pas jouer un grand rôle dans la présence ou l'absence de coliques; la croissance moyenne du groupe sous observation fut trouvée sensiblement la même que celle du groupe témoin; l'allergie et les troubles gastro-intestinaux ne purent être mis en cause pour expliquer ces désordres. L'incidence des coliques graves est d'environ 12% de tous les bébés vus dans la clientèle de l'auteur depuis quelques années. Il n'existe aucune variation saisonnière, mais la période de la journée où les coliques se font le plus sentir est de 6 hrs. à 10 hrs. du soir. Selon Illingworth, une obstruction localisée au passage des gaz dans le côlon devrait être incriminée. Même si les coliques disparaissent spontanément dans la plupart des cas après l'âge de 3 mois, il importe de souligner les deux principaux aspects de la thérapeutique qui sont: la suppression de la tension dans le milieu familial, et l'administration de phénobarbital à dose filée avant les repas. M.R.D.

THE NEUROGENIC BLADDER IN SPINAL CORD INJURY*

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WHEN THIS ASSOCIATION convened in 1945, one of us (D.S.) presented a paper, "The Neurogenic Bladder in Spinal Cord Injury."[1] A study of 30 such injuries prompted that report. Most of the patients were battle casualties. Many of the complications of trauma, recumbency, and infection were present on arrival and many more developed under our care.

Ten years have now elapsed since the arrival of the first battle paraplegics. Since then more have arrived and in addition many civilians have been treated. All patients in the present survey received preliminary care for weeks to months elsewhere. All are included in this study regardless of physical condition on admission.

Ten years' observation of these people has revealed many interesting patterns of behaviour. The maintenance of morale has been considered a prime necessity, but the original degree of optimism has been tempered by experience. However, these facts remain: so many live; so many are rehabilitated to gainful employment; and so many actively participate in and perpetuate their own Canadian Paraplegic Association. One female has married and borne a healthy infant. Several males have wed since injury. Other previously married men sustain their matrimony. Sixty per cent of those with complete lesions and 70% with partial ones are gainfully occupied. The unemployable class includes 18% complete paralytics and only 6% incomplete.

Such results illustrate urological progress, but more strikingly the triumph in courage and stamina exhibited by these patients—veteran and civilian alike.

Table I shows all the causes of neurogenic bladder treated on the Urological Service. Eighty-nine of these cases were of traumatic origin and these alone are being reviewed. There were 78 males and 11 females.

*From the Department of Urology, Deer Lodge Veterans' Hospital, Winnipeg, Manitoba.
Read at the 10th Annual Meeting of the Canadian Urological Association at Wellesley Island, New York, June 5, 1954.

TABLE I.—LESIONS PRODUCING NEUROGENIC BLADDER

Trauma:
- High velocity projectile
- Car or motorcycle accident
- Train accident
- Fall from a height
- Struck by heavy object
- Explosive land mine
- Diving accident

Non-traumatic:
- Spinal cord tumour
- Disc protrusion
- Tuberculous spine or spinal abscess
- Multiple sclerosis
- Guillain-Barré syndrome
- Diabetic peripheral neuritis
- Poliomyelitis
- Accidental injection into subarachnoid space

COMPLETENESS OF LESIONS

During the early months of treatment, diagnosis of a complete cord lesion is difficult. Certain nerve tracts, seemingly traumatized, may later reveal function and unpredictable improvement.

Lesions of the cauda equina near the first lumbar vertebra are often partial. This is understandable when one considers the arrangement of nerves in this region. Theoretically, transection of the cauda should completely destroy the reflex arc for urination and create an autonomous bladder. This has not been our experience. The best neurogenic bladders were obtained in these patients. They are not subject to spasm, and greater ambulation promotes better health.

TABLE II.—CLASSIFICATION BY NEUROLOGICAL LEVEL

	Complete lesion	*Incomplete*
Cervical	10	8
Dorsal (D 2 to D 12 inclusive)	45	3
Lumbo-sacral	12	11

TABLE III.—RELATION OF TYPE OF PRELIMINARY DRAINAGE TO END RESULT (MALES ONLY).

Good neurogenic bladder:	*Cystostomy*	*Urethral Catheter*
Cervical (complete)	0	2
Cervical (incomplete)	3	3
Dorsal (complete)	16	15
Dorsal (incomplete)	0	3
Lumbo-sacral (complete)	2	6
Lumbo-sacral (incomplete)	3	6
	24	35
Poor neurogenic bladder:		
Cervical (complete)	2	5
Cervical (incomplete)	0	0
Dorsal (complete)	2	6
Dorsal (incomplete)	0	0
Lumbo-sacral (complete)	1	1
Lumbo-sacral (incomplete)	1	1
	6	13

EXPERIENCES IN THE MANAGEMENT OF THE NEUROGENIC BLADDER

Munro's tidal irrigation with continuous catheter drainage was the immediate therapy for the majority of these patients (48 of 78 males). Table III illustrates end results for this group, compared to the sequelæ of early cystostomy. From these figures, no definite preference emerges for either form of immediate care—catheter or cystostomy. Under battle conditions emergency suprapubic cystostomy, as a policy, certainly had its advantages. The previously described methods to prevent infection, calculi, pressure sores, and ankylosis of joints, and to maintain health and morale were fully instituted.

misnomer. There is never an end to the management of these bladders. Dangerous complications in the urinary tract may occur years after a satisfactory pattern has been established.

The goal has been the development of a good reflex bladder with timed control: urination about every three hours; dry beds at night. This desirable situation connotes: (1) a good waterway; (2) bladder capacity of 5 to 12 oz.; (3) residual urine under 2 oz.; (4) infrequent infections; (5) relief from spasm. Several bladders in this study conform to such standards (Table IV). However, the majority of this group would never relinquish the security of a receptive apparatus when away from home. Timed voiding is too inaccurate and trained stimulation often unreliable. The two protective devices worn by these men are: (a) a standard rubber urinal (Fig. 1) and (b) a condom and catheter attachment. The latter device is more popular because of its comfort, lightness and disposability.

TABLE IV.—GENITO-URINARY END RESULTS (MALES ONLY)
(78 patients—complete and incomplete lesions)

	Cervical		*Dorsal*		*Lumbo-sacral*		*Total*
	Comp.	*Incomp.*	*Comp.*	*Incomp.*	*Comp.*	*Incomp.*	
Normal bladders		6		3			9
Good neurogenic bladders	1		31		8	9	49
Poor neurogenic bladders	8		8		2	2	20
(a) Permanent cystostomy	4		4		1	1	10
(b) Frequent infections	1		1		1		3
(c) Contracted bladder			3			1	4
(d) Cutaneous ureterostomy	2						2
Deaths			3		1		

All battle casualties had suprapubic cystostomies upon arrival at Deer Lodge Veterans' Hospital, Winnipeg. Indwelling urethral catheters and tidal irrigation with cystometric control replaced the cystostomy soon after admission. Suprapubic fistulæ were permitted to close. The few that did not heal were sutured. In some patients the tidal irrigator was considered impractical and an apparatus for aseptic irrigation and drainage served satisfactorily. Tidal irrigation, properly managed, is still considered ideal, but only in an organized centre with trained competent personnel. Improperly managed it may be useless, if not dangerous, and should be replaced by another method. Obviously a urethral catheter provokes serious genito-urinary complications if employed indefinitely. Periodic aseptic lavage, safe filling, and complete emptying of the bladder are the principles upon which adequate vesical recovery is based. When automaticity appears, trial of spontaneous urination should not be delayed.

END RESULTS AND THEIR CARE

The expression "urinary end results" when applied to the neurogenic bladder is really a

Principal causes of delayed bladder recovery are spasticity, infection, and obstruction.

Massive muscle spasm, or associated detrusor spasticity, greatly limits the vesical reservoir. To prevent spasm, six anterior rhizotomies and three alcohol blocks were performed. Sustained improvement occurred in these cases but the development of lower motor neurone lesions exposed the patient to more frequent pressure sores.

Infection, and the threat of infection, will always plague these patients. Stone formation, while troublesome in the early phases, ceases to be a major problem in the late stages. A more sinister complication, reflux, has become commoner with the passage of time. This reinforces our earlier statement that treatment for neurogenic bladder never ends. Cord bladder requires continuous observation.

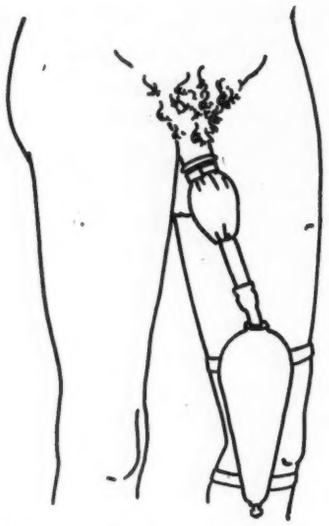

Fig. 1.—Condom attachment.

Bladder neck obstruction may prevent vesical recovery. Transurethral resection of such a bladder neck produces satisfactory results. The indications for resection were: (1) inability to void, (2) failure of suprapubic fistulæ to close, (3) repeated infections and/or calculi, (4) residual urine of three ounces or more, (5) delayed development of reflex bladder for other reasons.

When further spontaneous recovery appears unlikely, the operation is performed. We feel that undue delay is not necessary. Twenty-two resections were done on 15 patients without serious complications. Nine satisfactory results justified the procedure. The other six have cystostomies.

Permanent cystostomy appears more practical for quadriplegics because they cannot use their hands. A critical analysis of our 10 permanent suprapubic cystostomies reveals: (a) One patient with evidence of reflux and chronic urinary infection, (b) one death from coronary thrombosis, (c) four patients with poor sphincter control due to spasm who require rubber urinal or condom attachment, (d) four patients who refused to have suprapubic tubes removed and who have good sphincter control, normal capacity, and good bladders which have stood the test of time.

GENITO-URINARY COMPLICATIONS (MALES)

Urinary Infections

Urosepsis affects all patients during the first paralytic year and probably lurks continuously thereafter.

UPPER URINARY TRACT CHANGES

In eight cases caliectasis revealed definite evidence of chronic pyelonephritis. Cystography visualized reflux in six others, two of whom died. Reflux occurred in one quadriplegic and five complete dorsal lesions. Infected caliectasis appeared in two cases of quadriplegia, in five dorsal lesions and one caudal lesion.

TABLE V.—GENITO-URINARY COMPLICATIONS IN 78 MALES

Upper urinary tract infection	78
Upper urinary tract changes	14
Upper urinary calculi	9
Vesical calculi	26
Posterior urethral calculi	1
Epididymitis	12
Peri-urethral abscess	13
Anterior urethral diverticulum	5
Gangrenous cystitis	1

Upper Urinary Calculi

This includes renal and ureteral stones. Four patients required nephrectomy. Three of these had incomplete cord lesions and the other suffered a gunshot wound of his kidney. All except two of the remainder received open operation or manipulation. The calculi in this pair were "dissolved" by catheter lavage with G solution.

Vesical Calculi

Nine patients required suprapubic lithotomy. Three of these had complete cervical lesions, and permanent cystostomy was performed. Another man was mentally inadequate and the other patient a child. Four cystostomies were performed for large calculi. The remaining stones were crushed transurethrally.

Posterior Urethral Calculi

Large urethral calculi were removed at cystostomy from one patient who also had renal calculi.

Epididymitis

No vasoligations were done. The incidence of epididymitis among those treated by cystostomy was just as great as in cases initially treated by catheter drainage.

Periurethral Abscess

Prolonged catheter drainage created most abscesses. Three strictures further complicated this picture. One required permanent cystostomy.

Anterior Urethral Diverticulum

Surgery corrected all without sequelæ.

Gangrenous Cystitis

This condition occurred in a quadriplegic, and bilateral cutaneous ureterostomy was performed.

RELATION OF LEVEL AND DEGREE OF LESIONS TO RESULTS (Males only, Table II and Table IV).

Partial Lesions

Very good bladder function developed in 19 patients, nine of whom have normal urination.

Complete Dorsal Lesions

In 31 cases, good neurogenic bladders resulted. Eleven of these with most satisfactory function had a lesion of the 12th dorsal vertebra and should for physiological, anatomical, and clinical reasons be classified as caudal. Four of the dorsal group have a permanent suprapubic cystostomy. The unsatisfactory bladders are mostly hypertonic, contracted, and spastic. Reflux may be predicted in many of these.

Cauda Lesions

Lesions of the cauda require longer to develop automaticity but ultimately do better than injuries at higher levels. Factors favouring these patients are: (a) Rarely is the injury severe enough to completely destroy the reflex arc. (b) Spasm is not a problem. (c) Preservation of abdominal muscles assists voiding. (d) Greater sensation of vesical filling aids bladder training. (e) Early ambulation promotes better health.

Only one patient with a complete lesion in this group suffers from unsatisfactory micturition. Another one has a permanent suprapubic cystostomy.

Complete Cervical Lesions (Quadriplegics)

The quadriplegic is our most difficult problem. Only one patient has a good reflex bladder. Four men suffered such spasm that a reflex bladder could not be obtained. Two required cutaneous ureterostomy: one for gangrenous cystitis, one for failure of automaticity. Both showed destructive renal changes. The remaining two patients of this group have an unsatisfactory reflex bladder.

In our experience cutaneous ureterostomy has not proved satisfactory. We wonder if the ileal bladder has more to offer.

Female Paraplegics

There were eight complete and three incomplete lesions in this group of eleven females with spinal cord lesions. Five patients with complete dorsal lesions have timed control without wetting. Through absolute necessity these women have been able to train themselves to this ideal state. One wonders if the male could do better if he were denied the use of a rubber urinal. The other two with complete lesions lead a catheter life: one is a quadriplegic, the other has a D 4 lesion with no sphincter control.

DEATHS

Four traumatic paraplegics died, all with dorsal lesions. The causes of death were pulmonary tuberculosis 1, coronary thrombosis 1 and renal failure 2. The clinical pattern was the same in both renal deaths. Each case had ureteral reflux, uræmia, hypertension, œdema, and eye ground changes. Autopsy revealed shrunken kidneys with extreme fibrosis involving all structures. Both bladders were contracted. One had thick muscular walls; the other had marked fibrosis.

SUMMARY AND CONCLUSIONS

Eighty-nine cases of traumatic neurogenic bladder have been reviewed. Twenty of this group had incomplete cord lesions and presented no urological problem after routine preliminary care. In the series of complete injuries most satisfactory results were achieved after trauma to the cauda and twelfth dorsal levels. Quadriplegic patients obtained unsatisfactory vesical function.

REFERENCE

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ERRATUM

In the article by J. N. Briggs entitled "Staphylococcic Pneumonia in Infants and Young Children", published in the issue of February 15, 1957, there is an error in the drug schedule set forth in Table VII, page 271. The intramuscular dosage of chloramphenicol should have been given as 100-120 mg./kg.

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TRAUMATIC HYPHÆMA IN CHILDREN*
A REVIEW OF 113 CASES

M. SHEA,† M.B.

THIS REPORT CONSISTS OF a review of 113 cases of traumatic hyphæma (blood in the anterior chamber of the eye) seen during the years 1945-1955 in the Hospital for Sick Children, Toronto. In order to make the cases comparable with those of Thygeson and Beard[1] it was decided to classify them in a similar manner.

TABLE I.—OBJECTS CAUSING CONTUSION

Missiles (65)	BB	25
	Stones	17
	Balls	12
	Others	11
Manual weapons (37)	Sticks	20
	Belt or rope	5
	Others	12
Miscellaneous	Birth injury	1
	Fist	2
	Unknown	8

Table I shows that of a total of 113 cases, 65 were caused by missiles and 37 by manual instruments. Of the missiles, BB shot caused 25 and these will be seen to be the most serious injuries. Stones caused 17 injuries, balls 12 and others 11. The manual weapons consisted for the most part of sticks and pieces of rope. One birth injury is recorded. That BB shot should cause the most serious injury is to be expected, as it usually has a high velocity and is only 3 mm. in diameter.

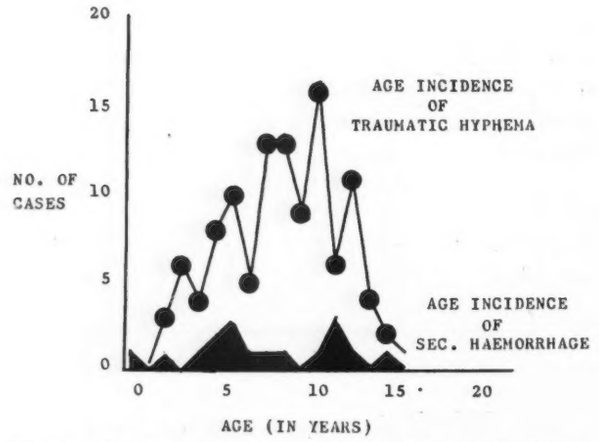

Fig. 1.—Traumatic hyphæma in children—age incidence.

*Read at a meeting of the Section of Ophthalmology, Academy of Medicine, Toronto, November 21, 1955.

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Fig. 1 considers the age incidence and the relationship of age to secondary hæmorrhage. It is to be seen from this figure that the incidence is high between the ages of six and twelve years; the records also reveal the male/female ratio in this group to be 8:1, while it is approximately 5:1 in the group as a whole. There is no particularly striking relationship between secondary hæmorrhage and age.

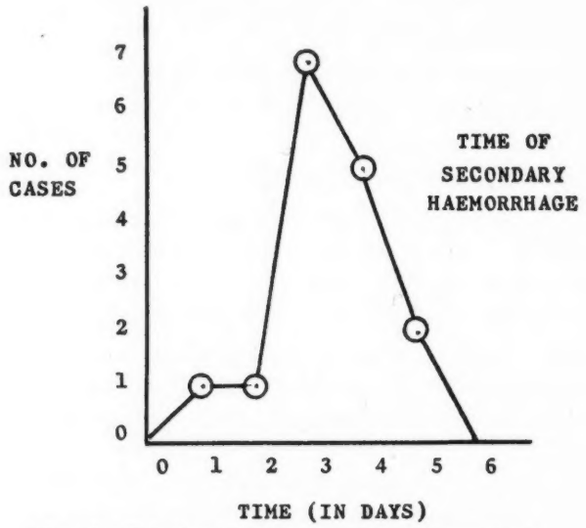

Fig. 2.—Relationship of secondary hæmorrhage.

Fig. 2 describes the time relationship of secondary hæmorrhage. It will be seen that approximately 77% occurred on the third or fourth day and none were noted later than five days. It is thought by Wilson[2] that postconcussive hypotony plays a big part in the production of secondary hæmorrhage, especially as the newformed capillaries are abundant and weak-walled at the third day.

Table II reveals the most frequently associated injury to be traumatic mydriasis (43 cases), the next in frequency being retrolental hæmorrhage (22 cases). The great majority of these less serious injuries are in cases with single hyphæmata only, while those who developed secondary hæmorrhage include five of the seven cases of glaucoma and the only two cases of corneal staining.

In Table III we see that the incidence of glaucoma in those cases with secondary hæmorrhage is 25%, while in primary hæmorrhages it is less than 2%.

The visual results in those requiring surgery are poor. Only three cases required operation; one ended in enucleation, the next in inaccurate light projection, and the last with 20/20 vision.

TABLE II.—ASSOCIATED OCULAR LESIONS IN 113 CASES OF TRAUMATIC HYPHÆMA

Lesion	*Single Hæm. only*	*Secondary Hæm.*	*Totals*
Corneal staining	0	2	2
Corneal stretching with tears in Descemet's membrane	1	0	1
Iridodialysis	10	2	12
Tears in iris sphincter	3	0	3
Traumatic mydriasis	35	8	43
Traumatic miosis	5	0	5
Traumatic cataract	5	2	7
Subluxation of lens	1	0	1
Retrolental hæmorrhage	18	4	22
Krukenberg spindle	2	0	2
Vossius' ring	6	0	6
Vitreous hæmorrhage	4	3	7
Macular hole	1	0	1
Macular œdema	2	0	2
Retinal hæmorrhage	1	0	1
Choroidal tear	2	0	2
Glaucoma	2	4	6

A keratome incision, gentle irrigation and complete iridectomy are recommended only as a last resort. Duke-Elder[3] prefers repeated paracentesis and the injection of air into the anterior chamber in the management of secondary hæmorrhage. Though it is true that repeated paracentesis may produce peripheral anterior synechiæ, the development of these, he believes,

TABLE III.—INCIDENCE OF SECONDARY GLAUCOMA IN CASES OF TRAUMATIC HYPHÆMA

	No. of cases	*Secondary glaucoma*
Single hæmorrhage	97	2
Secondary hæmorrhage	16	4

may be prevented by the introduction of air into the anterior chamber at the time of the first paracentesis. The late Jonas Friedenwald[4] had previously made the observation that, though an air bubble might cause an initial rise in tension, it would act as a resilient cushion and that lowering of tension is frequently the end result.

TABLE IV.—OUTCOME AS REGARDS VISION

	Single Hæm. only	*Sec. Hæm.*	*Sec. Hæm. with glaucoma*
Enucleation	0	0	1
Accurate light projection	2	1	3
20/200	1	1	0
20/100	5	0	0
20/70	1	0	0
20/40	1	1	0
20/30	7	3	0
20/20	67	6	0

13 cases of single hæm. were excluded because of inability to get a follow-up record.

Wilson[2] also suggests that the air bubble might reduce the incidence of corneal staining.

Table IV reviews the visual outcome as related to secondary hæmorrhage with and without glaucoma. This table refers only to a total of 100 patients, as 13 cases had incomplete visual acuity records. It will be seen that 67 of the 84 (80%) cases with primary hæmorrhage only had 20/20 vision and that eight had a visual acuity of 20/100 or less. Two of the 12 cases with secondary hæmorrhage only had a visual acuity of less than 20/100, while all four of the cases of secondary hæmorrhage with glaucoma had vision reduced to light perception, and one of these eyes was enucleated.

Table V shows that 25 BB gunshot injuries resulted in four cases in a visual acuity of 20/100 or less. In the 88 other cases in this series only five had this level of visual loss.

TABLE V.—VISUAL OUTCOME IN HYPHÆMA: CASES CAUSED BY BB SHOT

Vision	*No.*
20/20	19
20/50	2
20/200	1
Accurate light projection	3
Total No. of cases	25

Table VI, an expansion of Table V, reveals that BB gunshot injuries produced 66.6% of the iridodialyses, 85.7% of the traumatic cataracts and 28.6% of the vitreous hæmorrhages recorded in this series.

TABLE VI.—ASSOCIATED INJURIES IN CASES CAUSED BY BB SHOT

Lesion	*No.*	*Total No. by all causes*
Iridodialysis	8	12
Iris sphincter tears	3	3
Traumatic cataract	6	7
Subluxated lens	1	1
Vitreous hæmorrhage	2	7

COMMENT

The exact mechanism of concussion injuries of the eye is unknown. Arlt[5] in 1875 attributed much of the damage to the effect of an impinging force, usually acting antero-posteriorly, expanding the globe around the equator to the line of impact, and producing a lateral distension in the circumference. Forster[6] in 1887 added the concept of the aqueous driving the iris and lens in front of it and forcing the vitreous against the posterior pole. Duke-Elder[7]

adds the comment that the impact of the more firmly fixed tissues against the more mobile, the contraction of the iris and rebound of the lens, all combine to produce a complicated picture.

The changes produced in the uveal vessels are ischæmic spasm followed by prolonged reactive vasodilation. This produces a reactive hyperæmia of the anterior uvea and an increase in protein content in the aqueous—this is clearly demonstrated with the slit lamp and the fluorescein test (Amsler and Huber).[8]

Kilgore[9] found in monkeys after contusion injury in which hyphæma had been produced that the ciliary body was always separated from the sclera, sometimes as a contre-coup effect, and that there were nearly always tears in the ciliary body involving branches of the major circle of the iris. He felt that the hæmorrhage was from these lesions. It is possible that secondary hæmorrhage may arise from the fragile new capillaries which are plentiful in the damaged tissue on the third day (Hogan),[10] and Wilson[2] suggests that ocular hypotony may play a part in their production. Thygeson[1] noted active bleeding from the ciliary body when irrigating the anterior chamber in one of his cases.

Secondary glaucoma is generally believed to be caused by two factors: an upset in local nervous control of the uveal circulation which is spread over the entire uveal tract by axon reflexes, and the embarrassment of the chamber angle and iris surface by clotted blood (Duke-Elder[7]). Acetazolamide, which was used in all the cases operated upon in this series, had only a transient effect.

The treatment used in this series was simple. All patients, even those with microscopic hyphæmata, were admitted and put on complete bed rest with both eyes bandaged for approximately one week. It was not usually necessary to give sedation to the children. Neither mydriatic nor miotic was given as a routine. Only 11 cases had atropine instilled and the results do not suggest that it had any marked effect on prognosis, ten of these cases having a visual acuity of 20/20 and one 20/100 owing to a traumatic cataract. The figures involved are too small to justify any conclusions as to its effectiveness in preventing secondary hæmorrhage.

It would seem that blood dyscrasias play no part in the production of secondary hæmorrhage in cases of traumatic hyphæma. The literature does not reveal any case in which this feature was a presenting symptom, and the three worst cases of recurrent hæmorrhage in this series had a complete hæmatological investigation done without revealing any abnormality. The excellent nutrition and general condition of the children suggest that such therapy as administration of vitamin K or calcium is unlikely to be of help. Cortisone was not used in any form. Benedict and Hollenhorst[11] found that it delayed the absorption of red cells from the anterior chamber of the rabbit's eye. Streptococcal hyalase was thought of but rejected when it became known that, though it accelerates absorption of red cells, it causes such a violent foreign protein reaction that it frequently destroys the eye (Friedman[12]). Evacuation of the anterior chamber was found necessary in only three cases and was successful in one.

In this series, and in that described by Thygeson and Beard,[1] the etiology and age incidence are practically the same. The incidence of secondary hæmorrhage was somewhat higher—13 cases in a total of 34, compared with 16 cases in a total of 113 cases in this series. Secondary glaucoma is reported in 7 of the 13 cases of secondary hæmorrhage and bloodstaining of the cornea resulted in three. In this series there were four cases of secondary glaucoma in 16 cases of secondary hæmorrhage, and two of the four developed blood staining of the cornea. It is probable that the apparent discrepancy in the results can be explained by the fact that this series contains a larger number of less seriously traumatized eyes. Many of their cases were referred, while the majority of our cases were seen at the Emergency Department of the Hospital. Also, it should be noted that binocular bandaging was not done as a routine by Thygeson and Beard.[1]

SUMMARY

In conclusion, the main observations of this review are that the injuries are most frequently caused by missiles, BB shot being the most dangerous; that boys from six to twelve years form the group most frequently involved; that secondary hæmorrhage occurs mainly on the third and fourth day; that glaucoma is much more frequently seen in cases with secondary hæmorrhage; and that in the vast majority the visual outcome is good. The treatment recommended is bed rest for at least six days with

both eyes bandaged. Irrigation of the anterior chamber is considered as a last resort, but the use of air injection combined with early paracentesis in the management of secondary hæmorrhage is considered of value, though it was not used in these cases. Wilson's[2] suggestion of air injection as a prophylactic measure against secondary hæmorrhage is regarded as excessive in view of the good overall prognosis.

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PSYCHIATRIC ASPECTS OF COSMETIC SURGERY OF THE NOSE*

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INTRODUCTION AND REVIEW OF LITERATURE

IT IS GENERALLY RECOGNIZED that the patient who demands cosmetic surgery may be neurotically motivated. The daily press reports from time to time the case of a person who sues the plastic surgeon after an operation. More often than not, the operation has been apparently successful. Even more frequently the psychiatrist is confronted with cases in which either the desire for a cosmetic operation or the state following it is just one aspect of an involved psychopathological picture. The importance of establishing an intimate co-operation between surgeon and psychiatrist in cases of cosmetic surgery was mentioned by Updegraff and Menninger[1] and has been re-emphasized by more recent investigators.[2, 3] This advice is not always followed but the surgeon is not necessarily to blame for this. In many cases the situation in hospital and office is such that a systematic psychiatric appraisal of these cases is difficult. All this, and the rising popularity of cosmetic surgery in recent years, makes it important to draw attention to the possible neurotic motivations and psychiatric hazards associated with such operations.

Updegraff and Menninger[1] seem to have been the first to draw attention to a fact which is implied in all the subsequent reports; namely that there is an obvious psychodynamic difference between the patient who seeks surgical help for a serious, particularly a traumatic deformity, and the patient who comes on account of a deviation from the norm. They point out that the patient who is so preoccupied with his external appearance as to seek surgical help is often lacking confidence in his own deeper qualities. Mechanisms of transference to the surgeon colour the clinical picture, either positively or negatively; the surgeon is to the patient a courageous aggressive man, very much like the image which at one time the patient has had of the father. Baker and Smith[4] urge careful consideration of the emotional status of a patient coming for plastic surgery of the face, in order to "diminish the number of emotional defects which hound the surgeon after good technical results have been obtained". They cite cases of patients who became neurotically hostile and vindictive towards the surgeon after apparently successful cosmetic facial operations. One of their cases, a young woman who was successfully operated on for lop ears, turned out to be a poor result psychiatrically; schizophrenia was diagnosed and the patient had to be committed. MacKenzie[5] discussed the relationship between neurotic feelings of inadequacy and the indication for plastic surgery. Cosmetic surgery of the nose is likely to be more successful in women than in men because in the latter an undue preoccupation with external appearance has to be regarded as a more neurotic manifestation than in women (Linn and Goldman[6]). According to these authors, the nose has a particular psychological importance because of its racial significance and because it develops its definite shape during puberty very much like a second-

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ary sexual characteristic. Patients of Mediterranean origin in particular are apt to develop, in a North American setting, a neurotic group consciousness and over-sensitiveness about their facial appearance. In certain cases Linn and Goldman advocate rhinoplasty "as an adjuvant to psychotherapy". However, from their survey they come to the conclusion that "with few exceptions the patients who presented themselves for rhinoplasty were ill from a psychiatric point of view. This illness varied from minor neurotic disturbances to overt schizophrenic psychoses." At any rate, in cosmetic surgery of the face the primitive archaic meaning of facial features in the language of the unconscious has to be considered.[7] MacGregor and Schaffner[2] made a careful sociological and psychiatric survey of patients before and after rhinoplasty. From their study it is evident that applicants for this operation should be carefully screened. In the case of 73 applicants it was found that the motives given for the operation were often not the real ones. The description of single cases shows that many patients seeking cosmetic operations are markedly narcissistic, with traits of emotional immaturity, passivity and dependency. These are at the same time the patients most likely to be dissatisfied after the operation, quite regardless of the degree of success. Palmer and Blanton[3] also advocate evaluation of the mental state of every patient who seeks surgical correction of a nasal deformity. In doubtful cases a psychiatrist should be consulted. The nose has, in the language of the unconscious, a meaning of virility, and "the feeling of emasculation, as well as the feeling of mutilation, may be increased by surgery". Some plastic surgeons estimate that 75% of the patients who come for cosmetic surgery do so for neurotic reasons. The following case report seems particularly appropriate to illustrate the problem from both the practical and the theoretical point of view.

CASE REPORT

The patient who entered the Institut Albert Prévost on February 24, 1956, was a pretty and elegant girl with long brown hair, who looked younger than her stated age of 26 years. She was depressed, cried, and refused to eat or to associate with people. All this began after cosmetic surgery of her nose three months before her admission to this hospital.

The patient first got the idea of a cosmetic rhinoplasty after reading a magazine article. "I wanted a change so badly, I felt like trying cosmetic surgery. I had a little bump on my nose which had always bothered me." She went to a surgeon who "promised" her that an operation would improve her looks. According to her, he told her of television actresses, dancers, and models who had had such an operation. The patient got enthusiastic and right away made arrangements for her admission to hospital.

"It was all the fault of that man [the plastic surgeon]. He wooed me with his sweet words; he told me how much I would like it, how happy it would make me. When I woke up, it was all done!" . . . "He was a pig, yes, a real pig to do such a thing" . . . "He was experienced, he knew what he was doing, I was only an innocent girl in his hands" . . . "If I had him in front of me I would kill him. . . ." (She displayed previous photographs which show a convex nose; now her nose is straight, and according to superficial æsthetic standards her nose looks improved.)

The patient also blamed her boy friend for not having stopped her. "It was also his fault. He should have protected me against myself, stopped me from doing that crazy thing." When one objected that she might not have listened to him, the patient replied: "He should have been man enough to force me to listen to him." Again and again the patient repeated that the only thing that could help her was to be re-operated on and made as she was before. "If they can't do it I will go crazy". . . . She showed a collection of photographs of herself wearing "bikini" suits in provocative poses. Her nose is hardly noticeable but she claimed that she saw it in detail. "When I see myself *before*, I start crying. I was pretty then. Oh, I was not the most beautiful girl but there were thousands worse than me. . . . Now I can't even look at myself in the mirror!"

The patient was born and brought up in a small French Canadian village. The father died of cancer when she was 12 years old. The patient says that he was a very good looking man with a great deal of distinction in spite of his lack of education. "His language was beautiful. He never allowed us to use slang words." The mother died of a heart attack one year after the father's death; she had been sick for many years and at the time of the father's death had had a heart attack, which seems to have strongly impressed the patient.

She is the second oldest of seven children. The eldest, a brother of 32, left home before the parents' death and the patient hardly knows him. The third oldest is a 25-year-old married sister. The patient notes that she was prevented by "a cold" from attending her sister's marriage and visited her last summer for the first time in many years. She was impressed to see the children and the sister's husband, and felt sad after the visit. When she speaks of the dread of meeting people who have known her before the operation, this sister is the one she dreads most. "I would run away if I saw her." The sister is followed by three unmarried brothers of 24, 22 and 19 years respectively. There is also a 16-year-old girl who is in boarding school. The two younger brothers are described as "lazy, with no ambition and inclined to drink". The 24-year-old brother has been looking after the education of the younger sister.

After the mother's death the family was separated: some children went to an orphanage, some were taken by relatives. The patient went to live with an aunt who sent her to work as a chambermaid in a summer resort at the age of 14. Two years later the patient came to Montreal with a girl friend. She found work as a waitress in different restaurants, tried work in a clothing factory and eventually settled as a waitress in a small restaurant where she remained for six years.

At 23 she wanted a "change" and tried to work as a cigarette girl, then as a cloak-room attendant in night-clubs. She was disappointed with these jobs, found them too hard and returned to waiting on people in a larger restaurant. Later she worked sporadically as a salesgirl, as a representative for a perfume agency. She made hardly enough money to keep her small apartment and was helped by her boy friend and "older friends".

Since she had cosmetic surgery she has refused to take any job. "I don't see how I will ever be able to work with such a face."

She has always suffered from dysmenorrhœa and is nervous and irritable before her periods. As a child the patient saw a neighbour exposing himself to children. When she was working at a summer resort she and her girl friend used to peek into men's bathrooms. The two girls would get very excited lest someone should surprise them in the windows. Her job brought her in contact with all sorts of men: alcoholics, exhibitionists, old, young, etc. She stresses the fact that she had offers from many and always refused them. "I learned young how to defend myself. If a guy got fresh with me, I knew how to handle him."

When she came to Montreal the patient went out with an alcoholic man for one and a half years. She left him because he was drinking too heavily. For the past three years she has been going out with a 33-year-old man. He was a dancing teacher when she met him. "He is kind but does not take any responsibility." She feels her boy friend is too weak, does not give her enough emotional support and is too jealous. She considered him as a "chum" until her operation and felt much closer to him since, although he still irritates her beyond words at times. He was married once and is having trouble about getting a divorce. The patient cries and becomes panicky if her boy friend tries to have normal sex relations but she practises fellatio.

The patient has always had friendships with older men, and seems to regret bitterly not having accepted proposals made to her. "I could have got myself an easy life. . . . I am so crazy, if I had known what was to happen to me, I would have acted like the others. . . . It is no use to try to be good and honest to have to go through such a terrible thing as that. . . . Nothing could be worse . . . having a child, even twins! I would have a reason to feel bad; now I can't face myself. I don't know why I did such a terrible thing." The patient adds that she will never be able to get married now. "Nobody will want me. . . . I don't want to have children who will not look like me, who will have a different nose from mine."

Up to the time of her operation, the patient was always taking evening lessons in different subjects: dramatics, dancing, language, physical culture, etc. She felt the need to better herself, to learn and "make up for my lack of education". She does her own sewing and takes a great deal of pleasure from dancing with her boy friend. Sometimes other couples would stop and watch them. "I loved it but it made me so shy!" She hastens to add that she will never again be able to perform in public. During the therapeutic interviews in the hospital she recounted dreams which were indicative of narcissistic and exhibitionist tendencies.

Psychological tests were given. The first reaction to the Rorschach test was a kind of scorn and a tendency to criticize the test and to depreciate the cards. There were indications of lability and impulsiveness. The patient showed signs of infantile insatiability, a low frustration tolerance and impatience, marked impairment of practical sense and of insight. There were indications of a disturbance of feminine identification and of intense narcissism; narcissism manifested itself particularly in "clothing responses". A tendency towards asocial behaviour was noted. Intelligence was good. Relationship to objective reality was poor.

DISCUSSION

There are several noteworthy features about this case. Firstly, this patient's motivations for the operation were not realistic. She "wanted to be a dancer", she "wanted a change". On other occasions she mentioned the way in which "show business" and "television" influenced her decision. Throughout her history and in her productions while in hospital, there is evidence of a strong narcissistic and exhibitionistic element, albeit on a more sublimated level. These tendencies are infantile and crude, and her idea of "dancer" or "television" was unrealistic from the start. This is, incidentally just one aspect of a vast social problem created by the fact that a great number of young girls are prey to false ideals of fame and beauty artificially created by the entertainment industry.

The second point is her emotional reaction to the operation. The hidden symbolic meaning of the operation is but thinly disguised. If someone listened to her, not knowing that she was discussing her surgeon, he would undoubtedly think that she was talking about some sinister assault. ("He wooed me with his sweet words, he told me how much I would like it, how happy it would make me—when I woke up it was all done! . . . He was a pig, yes, a real pig, to do such a thing. . . . He was experienced, he knew what he was doing, I was only an innocent girl in his hands. . . . If I had him in front of me I would kill him.") This is not surprising if we consider the patient's entire development and her personality. She is the second oldest daughter of the family, and she lost both parents within one year, just at that phase of prepuberty when mechanisms of parental identification are in a delicate balance. There are indications that she was identifying strongly with her father, of whose handsome physical appearance she spoke several times; she also repeatedly spoke of his "beautiful language", and it is noteworthy that she herself is fastidious and stilted about her language. Her "boy friend" is a passive, dependent person, and she accuses him of not having been strong enough to dissuade her against the operation. Her entire sexual development shows overt signs of immaturity with marked orality. Moreover, there was ample evidence that she is in marked rivalry with the sister who follows her. An illustrative example is the following: She did not attend the sister's wedding because of a "cold", and in one of the dreams she related, while under treatment, that she prepared the sister's wedding reception. That same sister is the one she would now dread to meet more than anyone else, with her changed appearance.

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Her narcissistic and exhibitionist tendencies were evident not only from the history and the dream and other material she produced during interviews but from her entire behaviour during her stay in hospital. She was highly ambivalent about "being seen". She refused to eat in the dining room but on visiting days she behaved conspicuously with a group of young people in the lobby.

The fact that the nose may, in the "primary processes" of the unconscious, have a genital significance, was stressed by Freud[8] and was later confirmed in one of Freud's own patients (the "wolf man") who was followed up by Brunswick.[9] This finding has also been confirmed in observations in cases of facial surgery.[3, 7] Palmer and Blanton describe a woman who, after having been operated on for enlarged, swollen turbinates, fell into a suicidal depression and felt "ruined for life". The authors speak of this patient as a "very strong phallic woman". From the signs of identification with her father and from the relationship with her friend it may be surmised that a similar mechanism was at work in our patient.

A point of practical importance is our patient's insistence on being re-operated upon. The obsessive ruminating nature of her ideas would indicate that re-operation, even if it did lead to a restitution of her previous features, would not be successful psychiatrically. As a whole, the idea of re-operation should not be rejected completely. Among the patients described in the literature there is one case[3] who found "peace of mind" after a re-operation which was carried out five years after the first one. Baxter[10] reports one patient who developed a depression after rhinoplasty, and recuperated after re-operation. The two operations were carried out by two different surgeons. On the whole, one would expect re-operation to make the psychiatric picture worse. Like other cases of psychogenically determined "polysurgery", they are apt to favour secondary gains, i.e. the patient learns to utilize his operations to achieve neurotic aims rather than restitution.

Our patient arrived in such a severe state of depression with anorexia and insomnia, and with such severe degree of obsessive-ruminative thinking, that she had to receive somnolent insulin therapy and electroshock therapy in the beginning as symptomatic relief. Before that she proved inaccessible to psychotherapy. After sleep and appetite had been restored, psychotherapy was initiated. She gained only partial insight, and at the time of this communication she is socially only partially readjusted.

SUMMARY

The psychiatric aspects of cosmetic surgery are becoming a social problem of increasing importance. The case of a young woman is described who reacted to cosmetic rhinoplasty with a serious depressive reaction, obsessive-ruminating thinking, and extreme vindictiveness against the surgeon, all in spite of an apparently successful operation. It was found that her motivation for the operation had been neurotic. The psychodynamics and treatment of her case are discussed on the basis of her own history and of the previous literature on the subject.

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HOME-CARE PROGRAMS

"Some American schools are experimenting with home-care programs at the undergraduate level in an attempt to quicken the student's understanding of disease as something which happens to human beings rather than as a thin, stained slice of tissue under a microscope. But are we asking the students merely to play at being doctors, or are we teaching them medicine in the broad sense of the term? The question should be asked not if such a program is helpful, but rather is it the most economical expenditure of the student's time and effort? Does he gain more than he would normally gain under the maturing influence of the patient contact in the ward and out-patient setting. Those who advocate such a home-care program for undergraduate medical students should be prepared to answer these justified scepticisims."—Walter Bauer, *Brit. M. J.*, 2: 1445, 1956.

Case Reports

INTOXICATION BY AMINOPTERIN USED AS AN ABORTIFACIENT*

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TOXIC EFFECTS of folic acid antagonists used therapeutically have been described frequently, but the following is thought to be the first case of poisoning due to unauthorized use of 4-aminopteroylglutamic acid (aminopterin) as an abortifacient. Such use of this drug may now be expected to be fairly widespread, and further cases of similar poisoning may be expected, as at least one lay magazine in the winter of 1955-56 carried an article about "these abortion pills". The article was written in a cautionary tone but at least inferred fairly wide knowledge of the effects of aminopterin.

Knowledge of these abortifacient properties developed from experimental work on animals in 1949[1] and 1950[2] showing toxic effects from folic acid deficient diets on developing fetuses. The same effects were produced by the administration of folic acid antagonists. In 1952 Thiersch[3] applied these findings to humans and studied the use of aminopterin in therapeutic abortion. Twelve cases were studied, in all of which there were definite medical reasons for abortion. Doses of 6-12 mg. over a period of 2-5 days were given to patients in their first trimester. Fetal death followed by spontaneous delivery occurred in 10 of the 12 cases. Doses lethal to the fetus were said to have only transitory effects on the mother.

A 44-year-old white housewife was referred by her family physician to the Emergency Department of the Montreal General Hospital on March 14, 1956. Her principal complaints on arrival at the hospital were of sore throat, redness and swelling of her face, and a burning sensation inside her mouth—all of 24 hours' duration.

The patient, the mother of four grown children, had had her last menstrual period on February 1, 1956. Her menses had always been regular in a 28-day cycle. When her March period did not appear at the expected time, she began to fear that she might be pregnant. By March 10, she had become so anxious that she was willing to try anything to avoid the birth of another child. A female acquaintance arranged for her to purchase 100 tablets of aminopterin (0.5 mg.) from a neighbourhood druggist. Her friend assured her that if she took two of these tablets every five hours, an abortion would be induced, but warned her that she might feel slightly ill afterwards.

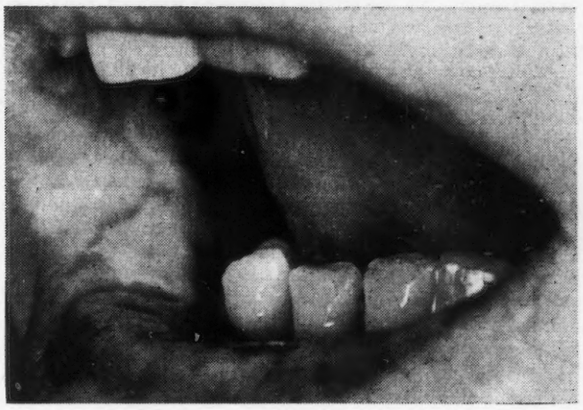

Fig. 1

The patient reported that on March 10 she took eight tablets; on March 11 she took eight and on the evening of March 12 she took an additional four. Thus, according to the history given by the patient, she had ingested a total of 20 tablets or 10 mg. of aminopterin. However, the referring physician stated quite definitely that, when he visited her at home, he counted only 66 tablets remaining in the bottle. There is, then, a strong possibility that she may have taken as much as 17 mg. of aminopterin over a period of 56 hours.

On the morning of March 13, the day following the last ingestion of aminopterin, she first became aware of a sensation of stiffness in the muscles of her face. Later in the day she developed a severe sore throat, and on looking into a mirror noticed that her entire face was swollen and red.

When she was admitted to hospital the next evening, she was in severe discomfort. Her temperature was 98.8° F., pulse rate 100, and blood pressure 125/75 mm. Hg. There was a fiery red, diffuse erythema of the entire face and anterior portion of the neck. Her face was swollen, especially the cheeks and soft tissues around the eyes, giving her a puffy, bloated appearance. This intense erythema was confined to the face; no involvement of the scalp or ears was apparent at this stage. Several small clear vesicles about 0.5 cm. in diameter were present on the chin, cheek and eyelids.

The lips showed a marked mucosal reaction with cracking and peeling of the skin. The gingivæ were pale and covered in most areas by a whitish exudate. The buccal mucosæ and soft palate were an angry red colour, œdematous and covered with large uneven patches of whitish grey exudate (Fig. 1). When this exudate was scraped away, small vesicles, similar to those on the face, were seen, as well as several shallow, irregular, ulcerated areas 1-2 cm. in diameter. Numerous petechial hæmorrhages were found scattered over all the mucous membranes. The faucial pillars and posterior pharyngeal wall were congested and mildly œdematous. The exquisite tenderness of the entire oral cavity caused the patient severe distress. She could not speak above a hoarse whisper and her pain prevented her from swallowing more than a few sips of water. An enlarged tender lymph node was palpated in the left postauricular region. No cervical lymphadenopathy was detected, but there was marked tenderness at the angle of the jaw bilaterally.

A blotchy pink macular eruption, mainly between the breasts, was present on the skin of the anterior chest wall. A few small patches of an eruption similar to the one between the breasts were scattered over the abdomen and flexor surfaces of both arms. On pelvic examination, the uterus was found to be minimally enlarged, the

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cervix closed, and an abundant brown mucous discharge present in the vagina. The remainder of the physical findings were unremarkable.

The hæmogram showed: hæmoglobin level 11.5 g. % (74%); red cell count 4,460,000; white cell count 8450; white cell differential within normal limits; platelets 172,000. Urinalysis: specific gravity 1.023, protein 0, sugar 0, red blood cells 5-10, white blood cells 0, casts 0.

Immediately after admission, the patient was started on the specific antidote, citrovorum factor 0.5 mg. b.i.d., as well as penicillin 400,000 units b.i.d. and streptomycin 0.5 g. b.i.d. Local therapy as suggested by Dr. Roy Forsey of the Department of Dermatology consisted of: hydrogen peroxide mouth washes, 5% aqueous Mercurochrome painted on the eroded areas, cold wet milk and water compresses to the face, and hydrocortisone 0.5% in stearyl cream at intervals between the compresses.

Examination of the larynx and hypopharynx by Dr. E. John Smith, of the Otolaryngology Department, two days after admission, revealed moderate redness of the arytenoids and larynx but no gross œdema. The true cords were also slightly red and covered with scanty mucous threads. Movements of the cords were present but restricted, presumably due to the minimal inflammatory changes seen. Proctoscopic examination failed to show any rectal lesions; there was no tenesmus or occult blood in the stool.

Hæmograms were obtained daily throughout the patient's hospital stay. At no time was there any evidence of suppression of hæmatopoiesis. The white cell count remained between 5000 and 8000 with normal differential counts, and the platelet count between 160,000 and 320,000. The bone marrow was not examined because of the absence of changes in the peripheral blood.

The lesions about the face and mouth remained unchanged for the first three days and then began to improve slowly. Her face became less swollen; the lesions inside the mouth healed slowly with the production of large amounts of exudate. The milk and water compresses gave her great relief from the pain. By the fourth hospital day she had regained her normal voice and was able to swallow a soft diet.

On the other hand, the skin lesions on the chest and abdomen increased in size and number. It was not until the fourth day that they began to subside gradually. The abdominal rash itched intensely, adding greatly to the patient's discomfort.

On the sixth hospital day the patient complained of profuse vaginal bleeding of sudden onset. This hæmorrhage was accompanied by crampy lower abdominal pain and the passage of large clots of blood. On vaginal examination the cervix was open, admitting one finger. The uterus was tender, mobile, slightly soft, and enlarged to the size of four weeks' gestation. A dilatation and curettage under Pentothal and cyclopropane anæsthesia was performed that night by the Department of Gynæcology. On exploration of the uterine cavity, a small amount of decidual tissue was found and removed.

Examination of microscopic sections of the uterine scrapings by Dr. W. H. Mathews, of the Department of Pathology, revealed a marked decidual reaction of the endometrium with a diffuse infiltration of polymorphonuclear leukocytes. No chorionic villi or trophoblastic cells were seen. A fetus was not found in the material submitted for pathological examination.

Following the dilatation and curettage the patient's hæmoglobin level was found to be 10.6 g.%. She was given a transfusion of 1000 c.c. of whole blood on the next day.

The skin and mouth lesions healed rapidly during the next eight days. On the day of discharge, 14 days after admission to hospital, the face and body were completely clear. All that remained of her extensive dermatitis was a few small shallow ulcerations less than 0.5 cm. in diameter on the buccal mucosa. As she was dressing to leave the hospital, she noted for the first time that her hair was falling out. It came away in large handfuls each time she attempted to comb her hair. Although the entire scalp was affected, there was no loss of body hair.

Two weeks after discharge from hospital, she had lost about 75% of the hair on her head. Six weeks after discharge there was evidence of beginning regrowth of hair, and when the patient was last seen, 10 weeks after discharge, her head was covered with fine fuzzy hairs about ½-inch (1.25 cm.) in length.

DISCUSSION

Since Farber introduced the therapeutic use of aminopterin in leukæmias,[4] there have been several descriptions of intoxications in humans.[5-7]

Toxic effects are all typical of folic-acid deficiency and consist chiefly of lesions of the digestive tract and hæmatopoietic system. Lesions of the digestive tract include necrosis of buccal and intestinal mucosa in varying degrees of intensity. Following toxic doses, after an interval of from two days to several months, whitish necrotic areas may appear on hard and soft palate, uvula, buccal mucosa, gums or lips. Usually the lips become cracked and bleed, and occasionally they become infected. The stomal lesions usually heal in 3-14 days. The intestinal lesions may precede or follow the stomal ones. Due to intestinal ulceration, abdominal cramps, diarrhœa and bleeding may occur.

Involvement of the hæmatopoietic system leads to depression of bone marrow activity and may be characterized by leukopenia, thrombocytopenia and anæmia. The clinical features may include petechiæ, bleeding gums and fever. With discontinuation of the toxin and administration of transfusions, these symptoms are usually controlled.

Other toxic effects include sensitivity reactions in which macular rashes are a feature; these respond to antihistamines. Alopecia may develop, even after the drug has been stopped. The hair grows again. Sometimes there is an increased sensitivity to infection, leading to furunculosis.

It has been observed in rat liver slices[8] that synthetic folic acid is converted into folinic acid or "citrovorum factor", so-called because of its utilization for growth by *Leuconostoc citrovorum*. It is in the form of citrovorum factor that folic acid enters into nucleic acid metabolism.[9] The conversion of folic acid to citrovorum factor is prevented by aminopterin.[10] Also aminopterin appears in some way to interfere with the action of citrovorum factor.

From these observations one may conclude that folic acid might prevent toxic effects of aminopterin if given before the antagonist; but

that, after toxic effects have begun, citrovorum factor should be a much more effective antidote. Burchenal and Kingsley-Pillers[11] found that as little as 3 mg. daily intramuscularly of citrovorum factor can prevent the toxic effects of as much as 45-60 mg. daily of Methotrexate (4-amino-N^{10}-methylpteroylglutamic acid) over a three-week period. Schoenbach *et al.*[12] gave 40,000,000 units of synthetic citrovorum factor intramuscularly daily to two patients without discontinuing the antagonist, and yet the toxic effects were reversed. Such an effect was not obtained from 20,000 units daily.

In the present case, the dose of aminopterin (10-17 mg.) was certainly larger than that given to most of the patients in Thiersch's series and probably larger than that given to any of them. Toxic effects began on the third day. There is question whether the slow subsidence of symptoms was due to withdrawal of the drug or was accelerated by the administration of citrovorum factor. However, as the specific antidote, the citrovorum factor may have saved this patient's life and certainly may save the lives of any subsequent patients misguided enough to take an even larger dose of aminopterin for a similar purpose.

SUMMARY

A case is described of intoxication by aminopterin used as an abortifacient. The dose was an amount from 10-17 mg.

Toxic effects appeared three days after the first dose and included skin erythema, macular rash, stomatitis, laryngitis, and temporary loss of hair.

Citrovorum factor was administered and may have hastened recovery.

The authors wish to express their appreciation of the co-operation of Dr. L. H. Battersby, who referred this case to hospital.

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LYMPHANGIOSARCOMA IN LYMPHŒDEMA*

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SINCE STEWART AND TREVES[1] directed attention to lymphangiosarcoma developing in elephantiasis chirurgica, a small number of additional cases have been recorded.[2-7]

This report presents two further cases of lymphangiosarcoma developing in lymphœdema. In the first case the lymphœdema developed after mastectomy while in the second case it was apparently primary in type.

CASE 1.

E.L., a 62-year-old white woman, was admitted to St. Michael's Hospital on July 13, and died on November 1, 1954. On January 7, 1950, she had undergone left radical mastectomy for scirrhous carcinoma of the breast with lymph node metastases. Immediately after mastectomy she received radiation therapy to large anterior and posterior fields covering the supraclavicular and axillary regions. A total of 4000 roentgens was given to each of these two fields in a period of 28 days.

She had been well for three years postoperatively until November 1953, at which time an area of reddening appeared in the left antecubital fossa, associated with swelling of the arm, forearm, and hand. The area of reddening became larger and in the two months prior to admission, pain and marked discomfort of the arm developed.

Physical examination revealed a healed left radical mastectomy scar. The left arm was markedly swollen, warm and indurated from the dorsum of the hand to the axilla. The skin of the axilla was puckered and contracted. Large patchy areas of reddish discoloration were present over the upper arm, infraclavicular area and axilla. On the anterior aspect of the arm a surgical scar was present, adjacent to which there were several tense, purple blebs varying from 0.2 cm. to 1 cm. in diameter. They had smooth, shiny surfaces (Fig. 1). The clinical impression was that she had either interference with the venous or lymphatic return due to postradiation changes, or that the swelling of the arm was due to secondary carcinoma. On three occasions, scar, skin and subcutaneous tissue were removed by plastic procedures designed to establish new lymphatic channels. She withstood the operations well and her progress was satisfactory.

In early October she noticed dyspnœa on exertion which in a few days was also present at rest. Examination revealed tachycardia and evidence of left pleural effusion. Thoracocentesis on five occasions removed a total of 7000 c.c. of fluid which was negative for tumour cells on three examinations. Her course was rapidly downhill, her arm became gangrenous and she died on November 1.

Pathology

(a) Gross.—At autopsy there was extensive gangrene of the left upper arm, which was variegated brownish-black and grey. The skin over the forearm was brownish-grey with several small crusted ulcers. Large areas of purplish discoloration were present in the left axillary

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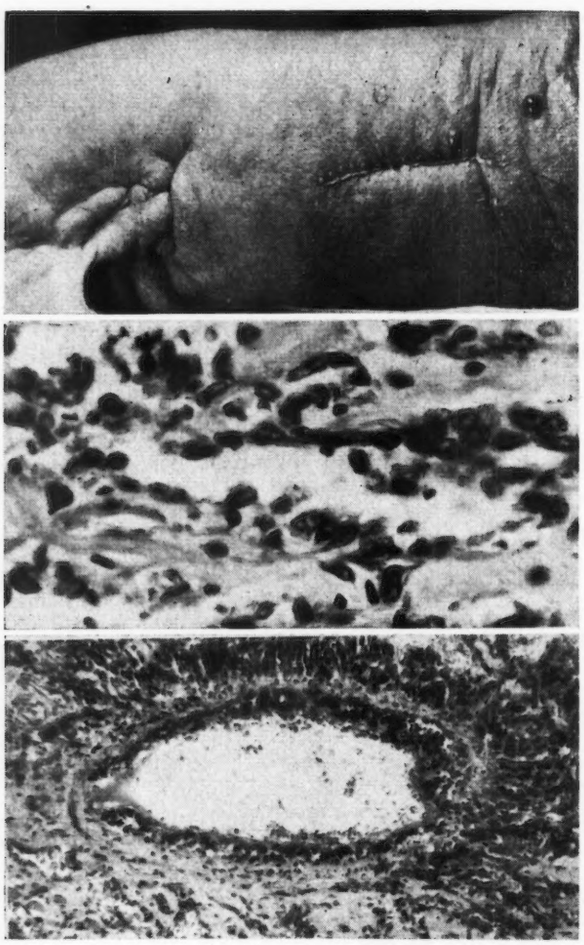

Fig. 1 (top)—Case 1. Postmastectomy lymphœdema of left arm with two purple blebs adjacent to healed incision, probably representing foci of lymphangiosarcoma. Fig. 2 (centre)—Case 1. Area of well-differentiated lymphangiosarcoma in corium of arm. Fig. 3 (bottom)—Case 1. Anaplastic lymphangiosarcoma invading wall of vein.

region, the anterior chest wall, the infraclavicular region and the back. These extended down to the waistline. Internal examination revealed 1500 c.c. of brownish opaque fluid in the left thoracic cavity. There were numerous fine fibrous adhesions between the parietal and visceral pleura.

The left lung showed massive atelectasis, and a large pulmonary embolus was present in the artery of the lower lobe. The right lung showed small foci of bronchopneumonia. At the hilum of the right kidney there was a renal cell carcinoma, 7 cm. in diameter.

(b) Microscopic.—Sections of skin and subcutaneous tissue showed all gradations from lymphangiectasis to clear-cut lymphangiosarcoma (Fig. 2). The neoplastic lymphatics tended to occur in multiple foci in the dermis, subcutaneous tissue and striated muscle. As in previous descriptions of this type of neoplasm, many of the channels contained erythrocytes. In the skin the tumour was in intimate relation to sweat glands, and in the muscle it extended between fibres. Also noted was the extremely intimate relation to veins with extension through the wall and lining of the lumen, as previously described by Stewart and Treves (Fig. 3). On the pleural aspect of the left lung, microscopic examination revealed exuberant granulation tissue invading fibrinous exudate.

Review of sections of scar tissue and fat removed three months prior to autopsy revealed small foci of markedly abnormal, probably neoplastic, lymphatic channels.

CASE 2.

C.J., a 28-year-old white man, was first admitted to St. Michael's Hospital in February 1951. He had had lymphœdema of the right side of his body as long as he could remember. This swelling was slight in the region of the face, arm and trunk but was marked in the right lower limb, where it gradually increased so that in the 10 years preceding admission the limb had become huge. At ages 7 and 16 he had had infections and cellulitis of his right leg. At age 18, diabetes mellitus was recognized and treated with insulin. In spite of the marked swelling of his right leg he had played all sports, finished school and worked steadily as a machine designer. In October 1950, an ulcerating lesion developed just below the knee, became larger and led to his admission to hospital.

Physical examination revealed slight swelling of the face and arm on the right side. There was pitting œdema of the right chest and abdominal wall. The scrotum and the right leg were enormous. The swelling was most marked in the mid-calf, which measured 34.5 inches (86 cm.) in circumference in comparison with the left side which was 12 inches (30 cm.) in circumference. The leg was swollen and soft, and marked pitting œdema was present. The skin was dry and scaly. Over the anterior thigh and leg there were irregular areas of hyperkeratosis. There was a much lesser degree of œdema of the right foot. On the antero-lateral aspect of the leg there was a 15x10 cm. ulcerated fungating lesion (Fig. 4). The surrounding skin was markedly indurated.

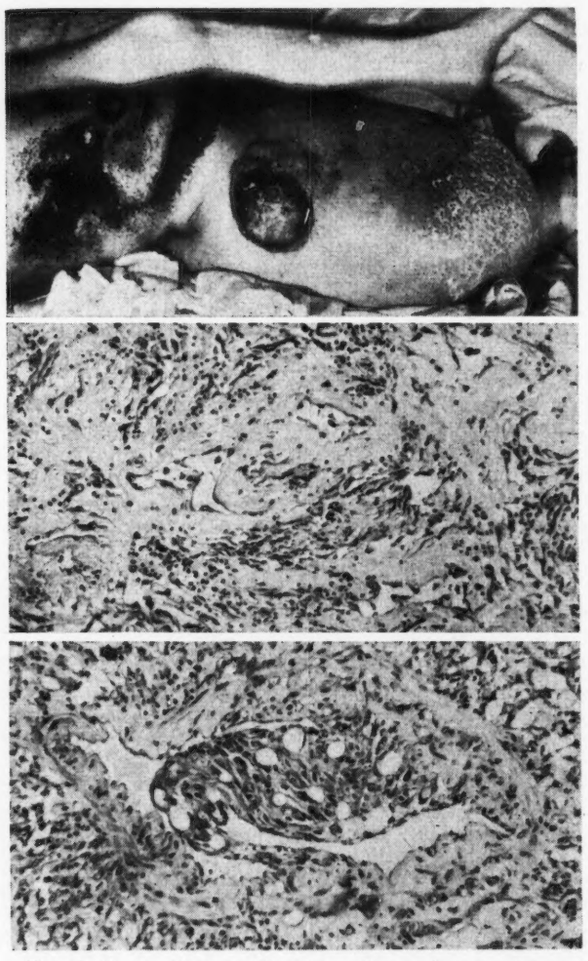

Fig. 4 (top)—Case 2. Massive primary lymphœdema of lower extremity with ulcerated tumour distal to knee joint. Fig. 5 (centre)—Case 2. Well-differentiated lymphangiosarcoma from corium of leg. Fig. 6 (bottom)—Case 2. More anaplastic lymphangiosarcoma invading vein including a venous valve.

Sixteen hundred c.c. of fluid removed from the right pleural cavity was negative for malignant cells. The ulcerating lesion was biopsied, after which the skin, subcutaneous tissue and deep fascia were removed from the knee to the ankle. The defect was covered by split thickness grafts.

Postoperatively he developed pulmonary infarction, but his condition gradually improved so that he was discharged after six-and-one-half months in hospital.

After he had been relatively well for two months, he developed severe aches in his arms and legs as well as anorexia. His final admission was for acute urinary retention, at which time he was emaciated and had bilateral effusions and ascites. He died one week later, seven months after operation. Consent for autopsy was not granted.

Pathology

(a) Gross.—The pathological specimen consisted of the skin and subcutaneous tissue of the right leg from the knee to ankle in its full circumference. The tissue was 8.5 cm. in thickness throughout its major portion. The tumour measured 15 cm. in diameter and had an irregular nodular surface and an indurated margin. In one area there was a 3-cm. ulcer covered by dry crust. The tumour was 10 cm. in depth and involved a wider expanse of the subcutaneous tissue than was anticipated from external examination. On section it presented as a yellowish, indurated mass with dense whitish-grey strands running to the surface. In its superficial portion there were fairly well circumscribed areas filled with clotted blood.

(b) Microscopic.—Multiple sections of skin and subcutaneous tissue revealed transition from lymphangiectasia to pleomorphic angiosarcoma. In the better differentiated areas, channel formation was clearly evident (Fig. 5). In the more anaplastic areas accurate identification of the tumour was difficult. Also evident in this lesion was permeation of the wall of veins and what appeared to be extension into a venous valve (Fig. 6).

DISCUSSION

The first case is considered to be an example of lymphangiosarcoma developing in post-mastectomy lymphœdema of the type first described by Stewart and Treves in 1949. The time lapse between the development of lymphœdema and the angiosarcoma is shorter than in other recorded cases.

The second case is considered to be lymphangiosarcoma developing in primary lymphœdema. The lesion shows gradations similar to those seen in the first case, and of particular interest is the tendency to infiltrate venous wall in a manner similar to that described in the initial report of post-mastectomy lymphangiosarcoma.

The common factor in these two cases would appear to be lymphœdema. In the first case there is the recognized sequence of breast cancer, radical mastectomy, lymphœdema and lymphangiosarcoma. The presence of a third malignant tumour is of interest in view of the fact that in one of the original cases there was a third malignant tumour, a squamous-cell carcinoma of the skin. In the second case the pre-existing lymphœdema was apparently primary in type. The historical evidence suggests that it was of the præcox subtype rather than congenital, but we are unable to establish this with certainty.[8]

The association of lymphangiosarcoma with post-mastectomy lymphœdema has been clearly established. Such an association between lymphangiosarcoma and lymphœdema of other types is less well recognized. In 1951 Martorell reported what he considered to be the first example[9] of "tumorigenic lymphœdema" not associated with radical mastectomy. In his case a 44-year-old woman developed lymphœdema of a lower extremity following open reduction of a fractured femur. Approximately one year after the onset of œdema, nodules of lymphangiosarcoma developed in the affected leg. Our second case is interpreted as lymphangiosarcoma developing in primary lymphœdema probably of præcox type.

SUMMARY

Two cases of lymphangiosarcoma developing in lymphœdema are presented.

The first case is an example of the recognized sequence—breast cancer, radical mastectomy, lymphœdema and lymphangiosarcoma. A third malignant tumour, renal cell carcinoma, was present.

In the second case, lymphangiosarcoma developed in primary lymphœdema of a leg.

These cases are presented as additional evidence of an association between lymphœdema and lymphangiosarcoma.

The authors wish to thank Dr. W. Keith Welsh and Dr. Hoyle Campbell for permission to publish the first case and Dr. W. D. Smith for similar permission in the second case.

The photographs are by Mr. Arthur Smialowski.

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SUBACUTE COR PULMONALE FOLLOWING TROPHOBLASTIC PULMONARY EMBOLI

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SUBACUTE cor pulmonale as a clinically recognizable and pathologically distinct entity is distinguished, according to Brill and Robertson,[1] by the rapid development of signs and symptoms of right heart strain in a patient with no previous history of pulmonary or cardiac disease, and no history of any other condition capable of producing right heart strain. The dominant symptoms are dyspnœa and unproductive cough, which are mild at onset, but tend to become rapidly severe. The course, after cor pulmonale develops, lasts from two weeks to two months, rarely longer.

Subacute cor pulmonale differs from the acute type[2] in its more gradual onset and more prolonged course. The patient with the subacute type has less severe pain and a milder degree of shock than is experienced by the patient with a massive pulmonary embolus (which is usually the cause of acute cor pulmonale). The subacute type differs from chronic cor pulmonale in not being preceded by any form of cardiopulmonary disease and the course in the subacute type is shorter.

The cause may be a rapidly progressive narrowing of the pulmonary vascular bed by carcinomatous metastases to the lung's arterioles and/or lymph vessels. Such was the cause in the five cases[1, 3-6] reported up to 1940. In the case to be presented here, the pulmonary vascular bed was narrowed by metastasizing clumps of trophoblastic elements.

A 27-year-old married woman was admitted to hospital on December 3, 1954, because of dyspnœa, weakness and chest pain. Past illnesses included scarlet fever, mumps, measles, mastoidectomy (13 months of age), fractured skull resulting from automobile accident (age 20 years) and dysmenorrhœa prior to her marriage. The patient's father, mother, two sisters and one brother, and her husband, were all alive and in good health.

She related the following obstetrical history. In 1949 she aborted after a gestation of three months, following which there was no menstrual disturbance. She was unable to become pregnant again, however, until the fall of 1951. The following summer, after an uneventful pregnancy, she was delivered of a normal full-term 6-lb. baby girl. The labour and postnatal periods were normal, but two months after the delivery she suffered from prolonged menstrual flow (with periods lasting up to 15-17 days), and between periods she experienced leukorrhœa—a symptom which persisted throughout the ensuing illness.

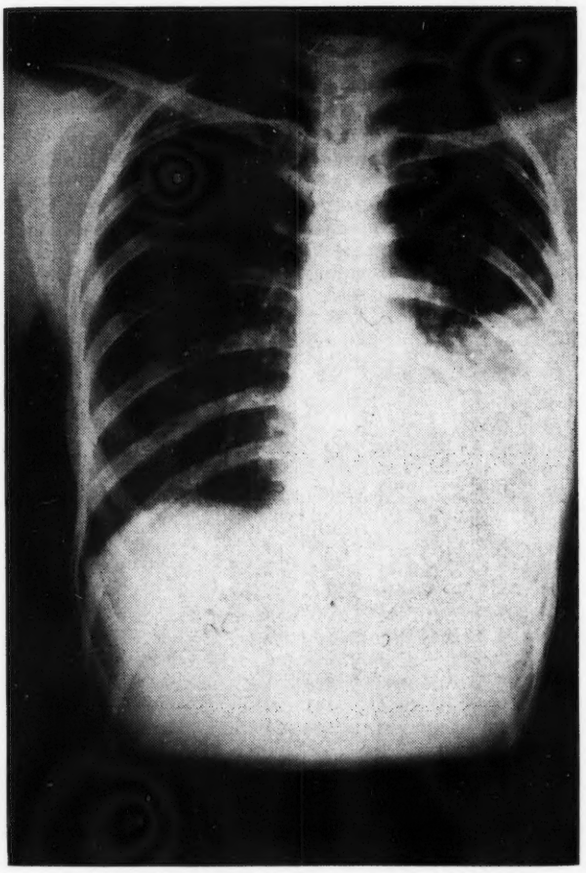

Fig. 1.—Chest radiograph, September 20, 1954.

In May 1953 the patient's weight was 115 lb. and her blood pressure was recorded as 140/80 mm. Hg. A diagnostic dilatation and curettage was performed, and the cervix was cauterized. The pathological report on the curettings was: (1) differentiative endometrium, and (2) chronic endometritis (non-specific).

Another curettage, performed in February 1954 for irregular, prolonged menstrual flow and leukorrhœa, disclosed no abnormality. The patient was therefore treated with Progestin with some improvement in the menorrhagia. Three months later she complained of occasional soreness in the right side of her chest.

In July 1954 while she and her husband were on a holiday the patient suffered severe bilateral crampy pains in her chest. It was just a week or two before this that she had passed a large, unusual-looking blood clot (not examined). At the same time she had been aware of painful breasts and had considered that she might be pregnant. The chest pain was accompanied by anorexia, weakness, breathlessness, and an infrequent, non-productive cough. There was no hæmoptysis. The chest pain was most marked in the recumbent position. She had lost some weight since the previous summer, weighing at this time only 100 lb.

In August 1954, Mantoux tests were negative. There was severe pain in the left lower chest and left upper quadrant of the abdomen. Between August 10 and September 20, several aspirations of the left side of the chest were performed, yielding each time straw-coloured, clear fluid which was negative for the tubercle bacillus by culture and guinea-pig inoculations. A chest radiograph taken September 20 is shown in Fig. 1.

Between August 6 and August 19 she had a mild fever (99.4-101° F.) and was given tetracycline (Achromycin) and penicillin and streptomycin (Dicrys-

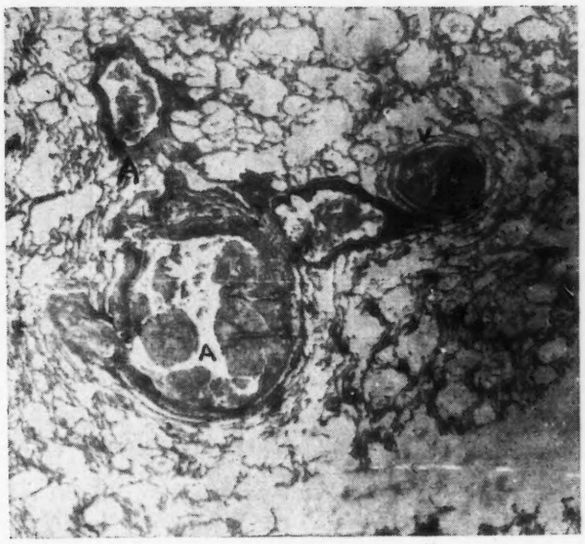

Fig. 2

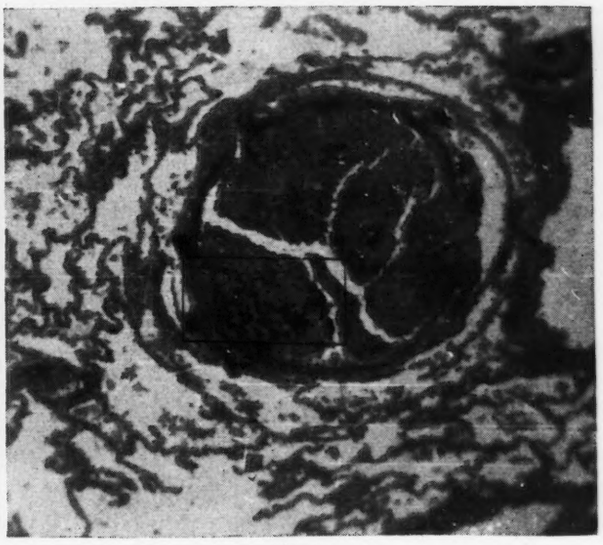

Fig. 3

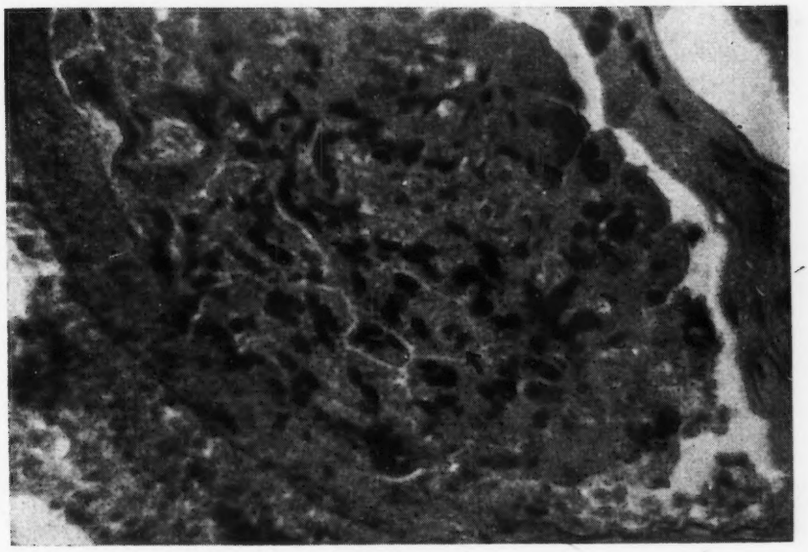

Fig. 4

Fig. 2.—Trophoblastic elements were present in both arteries and veins, suggesting proliferation of these cells with extension from arterial channels to venous channels.

Fig. 3.—Trophoblastic cells in pulmonary artery.

Fig. 4.—Rectangular area in Fig. 3 enlarged. Arrows point to mitotic figures.

Fig. 5.—Syncytial cells and cytotrophoblastic elements in lumen of pulmonary artery.

Fig. 6.—Rectangular area in Fig. 5 enlarged.—S.C., syncytial cell with five nuclei. Other syncytial cells are present as well as groups of Langhans cells in the upper right.

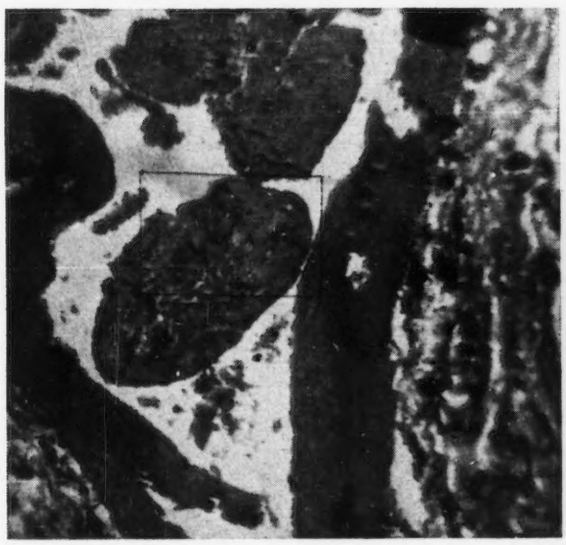

Fig. 5

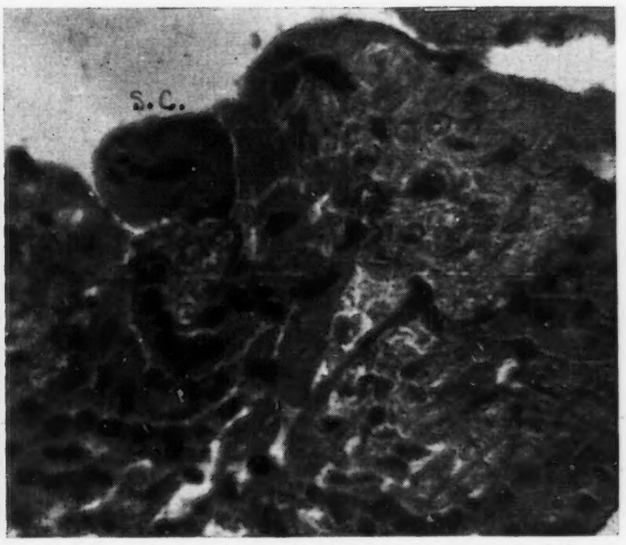

Fig. 6

ticin), but from August 20 until her dismissal from hospital on October 2, her temperature was normal. There was an elevated respiratory rate (30/minute) but the pulse rate (70-90) and B.P. (124/80) remained normal. Her weight at this time was down to 87 lb.

The white cell count varied between 9000 and 12,000 and the erythrocyte count and hæmoglobin value were within normal limits. The erythrocyte sedimentation rate by the Westergren method on three occasions was 67 (Aug. 24), 57 (Sept. 3) and 52 (Sept.8). Urinalysis was normal. The patient was discharged from hospital on October 2. On October 15, agglutination tests for typhoid and paratyphoid fever and brucellosis and the Weil-Felix reactions for rickettsial diseases were found to be negative.

In the interval from October 2 to December 3 the patient was under the attention of a chiropractor for the relief of chest pain. She claimed some relief of the pain, but her cough persisted and had become more productive. The sputum was sometimes blood-tinged.

On November 20, she suffered severe lower abdominal crampy pains which radiated into both legs and were followed by a sensation of numbness in the legs. Her legs "felt like posts". This complaint subsided in a few days.

On December 3 she complained of great difficulty in breathing, marked weakness and pain in various parts of the chest. She now weighed 72 lb. The vaginal discharge persisted, and had been rather profuse in recent weeks, with a yellow or green colour. Her menses were irregular. Her last period lasted from November 1 until November 21.

The lips were cyanotic, and her family described an increasing pallor.

Physical examination.—On December 3 the patient was hospitalized for the last time. She was mentally alert, co-operative and intelligent but apprehensive. She was breathless and orthopnœic. Her complexion was pale, and there was some puffiness below the eyes. There were palpable cervical lymph nodes, and a small palpable node in the subcutaneous tissue between the 6th and 7th ribs in the mid-axillary line was noted. The patient was extremely thin. Slight cyanosis of lips and nailbeds was noted, but there was no clubbing of fingers or toes. The respirations, 40 per minute, were shallow and there was crepitation over the lower sternum. Normal vocal fremitus was present throughout both lungs and the percussion note was normal except for slight hyperresonance over both lower lung fields. Breath sounds were increased in intensity over both lungs anteriorly and posteriorly, with the expiratory phase prolonged. An occasional rhonchus of fine to medium quality was heard over both lungs, but no moist rales were detected.

The pulse, 110 per minute, was regular but the volume of the radial pulse on each side was decreased and the wall of each radial artery was easily collapsed. Femoral, popliteal, and dorsalis pedis pulses were present. The neck veins were not significantly engorged. Palpation revealed a marked systolic thrust at the left sternal border, though there was no thrill. Sounds 1 and 2 were present over all valve areas, with a tendency to tic-tac quality and at times a gallop rhythm. The first mitral sound was loud. The second pulmonic sound was much accentuated and louder than the second aortic. No murmurs were detected. The B.P. was 70/50.

The abdomen was slightly distended, though free from tenderness and palpable masses, and neither the liver nor spleen was palpable. There was no ascites.

Pelvic examination disclosed a patulous open cervix with retroflexion and retroversion of the uterus. There was a yellowish-green discharge and some blood was present in the vagina.

There was no swelling or œdema of the legs, and the skin was clear.

The following differential diagnosis was considered on admission to hospital:

1. (a) Unresolved pneumonia.
   (b) Pulmonary sarcoidosis.
   (c) Chronic diffuse inter-alveolar fibrosis (Hamman-Rich syndrome).
   (d) Rheumatic pneumonia.
   (e) Pulmonary tuberculosis.
   (f) Recurrent pulmonary emboli.
2. Bilateral pulmonary fibrosis with pulmonary hypertension and cor pulmonale.
3. Chronic endometritis with pelvic cellulitis and vaginitis.
4. Chronic stress state.

Laboratory findings.—During hospitalization the white cell count varied between 10,000 and 14,000, while the erythrocyte count, hæmoglobin value, differential white cell count, platelet count, bleeding and clotting times were normal. The erythrocyte sedimentation rate was 46 mm. in one hour (Westergren) on December 4. Repeated urinalyses were negative except for slight albuminuria on a few occasions. The following blood chemical results were obtained: blood urea nitrogen 9 mg., sugar 97 mg. per 100 c.c.; total serum protein 6.2 g., serum albumin 3.1 g., serum globulin 3.1 g. per 100 c.c.; serum calcium 9.4 mg., serum phosphorus 3.8 mg. per 100 c.c.; serum chlorides 105 mEq.; bicarbonate 17 mEq., and total base 141 mEq./l.

In the light of subsequent findings, it is unfortunate that biological tests for the presence of gonadotropic hormone in the urine were not carried out.

Clinical course.—The temperature from December 3 to December 13 was subnormal, ranging from 94 to 96° F. From December 14 to December 16, it was elevated to 100 and 101° F., returning on December 17 to 98° F. (axilla). The pulse remained elevated (110-140/minute). Fluid balance was reasonably well maintained with adequate intake and output throughout her hospitalization.

She felt better with oxygen therapy. The cough remained productive, bright red sputum appearing at times. A biopsy of the lymph node in the left chest wall revealed chronic lymphadenitis.

Because of the apparent stress state, cortisone therapy was started on December 10. Respiration was becoming more difficult on December 12. A few moist rales were heard at the bases and the liver became palpable two-fingerbreadths below the right costal margin. It was soft and non-tender. Slight œdema developed in the ankles for which Thiomerin was given on December 13, with a good diuretic result. Cortisone dosage was reduced. The lung bases cleared. The blood pressure between December 9 and 19 varied between 90/60 and 104/60.

On December 13 some tissue was removed from the vagina. Microscopically it was found to be necrotic and inflammatory debris, but cells resembling decidua were noted in the debris.

The following day she had occasional spells of severe coughing, associated with marked cyanosis and extreme apprehension. Pulmonary emboli were suspected. More severe pain in the right side of the chest was experienced on December 15. Codeine gave reasonable relief. Cyanosis was extreme. On December 18 there was slight swelling of the face; coughing exhausted the patient. The sputum comprised clear mucus. The respiratory rate varied between 28 and 36 per minute.

On December 20 there were recurrent episodes of mucus in the throat. The lips and fingertips were deeply cyanosed. At 8.10 a.m. the patient complained of severe pain in the left anterior chest and the cyanosis deepened. Twenty minutes later she suffered from severe generalized abdominal cramps and at 10.00 a.m. she lapsed into unconsciousness. The pulse became weak and thready and respirations were shallow. Finally at 10.45 a.m. respirations ceased and about the same instant the precordial beat became still.

Necropsy findings.—A necropsy was performed four hours after death. The body was emaciated. Both pleural cavities were obliterated by well-organized fibrous adhesions. While the heart was of normal weight (230 g.), there was dilatation of the right ventricle and the

thickness of the wall of this chamber had reached the upper limit of normal (5 mm.). There were no valvular defects. The valve orifices in circumference measured: P.O. 6.5; A.O. 6.0; M.O. 8.0 and T.O. 11.5 cm. A small patent foramen ovale was present but there were no septal defects. In the left pulmonary artery, there was a thrombus firmly attached to the wall and nearly completely occluding the lumen. This was about 3 cm. in length, and lines of Zahn marked its surface. The thrombus was brown, friable and slightly granular on its cut surface. The tertiary branch of the pulmonary artery in the lower lobe on the left side was completely occluded by another thrombus. The consistence of the pulmonary parenchyma of both lungs made them less compressible than usual, though the lungs were not heavier than normal. The right lung weighed 240 g. and the left 210 g. In both lungs there were many fairly discrete areas of increased firmness in which the tissue was brown and inelastic. These varied from 2 to 4 cm. in diameter. Much of the pulmonary tissue seemed relatively airless and it was roughly estimated that at least 50% of the pulmonary tissue was functionless. The stomach, bowel, gall-bladder and pancreas were not remarkable. On the lateral surface of the spleen, an area 5 cm. in diameter of hyperæmia or hæmorrhage was noted though no arterial embolus corresponded to this. The kidneys were of normal size and contour. Several poorly delineated pale areas a centimetre or two in diameter marked the cortex of the left kidney and each of these possessed a vaguely hyperæmic umbilicated centre. The genitalia were normal except for a hæmorrhagic discoloration of the endometrium and a piece of necrotic tissue in the cervical orifice which measured approximately 1 cm. in diameter. At the bifurcation of the aorta, a saddle embolus had become attached and extended for 2 cm. down into the left iliac artery. This embolus was 4 or 5 cm. in total length.

Microscopic examination.—Microscopically, the pulmonary and aortic thromboses and the necrotic tissue in the cervical orifice of the uterus were found to contain rather pleomorphic nuclei in protoplasmic pools resembling those of the syncytial layer of the chorionic villi. There were also in these sites smaller cells with better defined cytoplasmic outlines resembling the Langhans cells of the trophoblast (cytotrophoblast). Moreover, in sections of the lungs an amazingly large number of small arteries as well as the corresponding veins were partially or completely occluded by either thrombi or emboli (Fig. 2). In both were trophoblastic elements which were viable, and mitotic figures were encountered. The trophoblastic constituents were found to be situated at the periphery of the thrombotic material and were thus able to obtain their nutrition from the blood (Fig. 4). There was no necrosis of pulmonary tissue and nowhere had the trophoblastic elements invaded pulmonary parenchyma. In some cases there was a lymphocytic infiltrate into the arterial walls. Many of the syncytial nuclei were grotesque (Fig. 6). In some of the cells the chromatin appeared like a fine powder, while in other cells it was coarsely clumped. In some of the emboli, the syncytial cells had undergone necrosis, leaving only a shadowy outline. The firm areas in the lungs proved to be organizing infarcts in which there were scattered lymphocytes and deposits of hæmosiderin, both extracellular and intracellular. The uterus was free from placental residue though the endometrium contained a lymphocytic infiltrate. The lesions in the kidney proved to be areas of necrosis involving the convoluted tubules.

DISCUSSION

Two points in this case make it worthy of discussion: firstly, the clinical picture of cor pulmonale of the subacute type, and secondly, the extremely rare occurrence of metastasizing, persisting and proliferating trophoblastic elements within the pulmonary vessels which caused the cor pulmonale.

Concerning the clinical symptomatology, it is interesting to speculate on the date when the trophoblast responsible for the metastases became established in the uterus of this patient. Because of the prolonged period of polymenorrhœa and menorrhagia associated with the leukorrhœa, one might conjecture that the uterine trouble began after the pregnancy about two years before the final illness. On the other hand, it is reasonable to suppose that the passage of a large clot with some tissue in early July 1954 may have marked the initiation of the process. Confirmatory of this second supposition was the failure to demonstrate placental tissue in the two curettings after the pregnancy.

At any rate, unrecognized pulmonary emboli are known to occur with subsequent chronic cor pulmonale. In five of 12 such cases described by Owen *et al.*[7] murmurs were heard along the left sternal border. In the other seven cases reported by these workers no murmur was heard. In the case reported here, again there was no murmur either along the left sternal border or in the pulmonary area of the precordium. During August and September there was no evidence of right ventricular involvement, and it was only on the occasion of her last admission in December that the marked systolic thrust at the left sternal border, along with the very loud pulmonary second sound, was present. One may assume, therefore, that the cor pulmonale developed some time after the beginning of October. This would mean that the cor pulmonale was present about two months before death, the two-month period being the time limit taken by Brill and Robertson[1] as a significant criterion in classifying cor pulmonale as subacute. Right ventricular dilatation demonstrated at necropsy is another important criterion.

The condition was caused by pulmonary metastases in this case, as in previously reported cases,[1, 3-6] but in none of the latter were the metastases of trophoblastic elements.

It is normal during pregnancy, according to Novak,[8] for trophoblastic elements to be deported through the pulmonary arteries. Persistence of trophoblastic emboli long after the uterus is empty is not normal. Moreover, the proliferation in the pulmonary vessels of cells

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originating from the placenta signals a neoplastic activity. Such activity was confirmed in this case by finding mitotic figures among the embolic cells (Fig. 4). The relative benignity of the process is manifest in the absence of invasion beyond the vascular channels and in the absence of necrosis of tissue both in the myometrium and in the lungs, attesting against this being a true chorionepithelioma.

Savage[9] relates a similar case history of benign metastasizing trophoblastic elements which produced rather large radiologically demonstrable pulmonary lesions. These lesions persisted for a period of months, increasing in size and number long after the uterus was emptied and its content diagnosed histologically as a benign mole. There was some evidence of a metastatic lesion in the lung one year after the diagnosis was made. The regression of the growth was prompt and a chest radiograph two years after the first diagnosis was made showed no evidence of any of the previous lesions. It is interesting that a negative biological test was the first indication of retrogression of the lung lesions. It is unfortunate that no pregnancy tests were performed in the case presented here.

The outcome is not always such a happy one, and a fatal case has been reported by Hughes[10] where a hydatidiform mole led to massive multiple syncytial emboli to the lungs with extensive pulmonary infarcts and partial collapse of the lungs. Another fatal case of pulmonary syncytial giant-cell embolism in the sixth month of pregnancy was reported by Marcuse.[12]

Novak[8] credits the syncytial cells of the chorionic villi with an amœboid behaviour, and such an activity combined with active cellular proliferation would help to explain the entrance of these cells into the pulmonary veins and the production in a large vein of thrombus of such size as to lead to a clinically recognizable aortic saddle embolism. The arteriovenous shunts believed to exist in the lungs would permit more extension of these trophoblastic elements from arteries to veins.

The persistence and proliferation of embolic trophoblast in the pulmonary vessels in a few cases instead of the usual regression may be explained according to Novak[11] "only on the assumption of a local and probably also a systemic defence mechanism, though we know practically nothing as to its nature".

SUMMARY

A case of subacute cor pulmonale is reported. The underlying process was apparently extensive pulmonary embolization of trophoblastic elements originating, it is assumed, from the uterus.

We are happy to acknowledge valuable assistance given by Dr. B. O. Black, who interpreted the radiographs of the chest; Dr. J. W. Macgregor, Professor of Pathology, University of Alberta, who examined sections of the lung from this case; and Dr. M. Marshall, who assisted in photographing the radiograph.

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C-REACTIVE PROTEIN DETERMINATION AS AN INDEX OF MYOCARDIAL NECROSIS IN CORONARY ARTERY DISEASE

C-reactive protein determinations in 100 selected patients with coronary disease indicate that the level of C-reactive protein in the serum is a sensitive index of myocardial necrosis and inflammation, provided other infectious and non-infectious stimuli for its formation are absent.

The C-reactive protein test is negative in the premonitory preinfarction stage of acute transmural infarction. C-reactive protein may be detected in every case of transmural myocardial infarction with Q waves in the electrocardiogram. Serial tests are essential because there may be a delay (12 to 72 hours) in the formation of C-reactive protein, depending on the degree of infarction.

A negative test during convalescence from transmural infarction (third or fourth week) is thought to signify subsidence of myocardial necrosis and inflammation. Any recurrence of a positive test indicates phlebothrombosis, recurrent myocardial infarction or some other complication.

A positive C-reactive protein test is diagnostic of myocardial necrosis in symptomatic coronary disease without Q waves. The test is sensitive and clinically helpful when the usual objective criteria for myocardial necrosis are equivocal or absent, such as fever, leukocytosis, elevated sedimentation rate and blood fibrinogen.

A negative C-reactive protein test in coronary insufficiency indicates the absence of significant myocardial necrosis only if repeated serial determinations are negative.—I. G. Krop and N. H. Shackman, *Am. J. Med.*, 22: 90, 1957.

Special Article

HEALTH SERVICES FOR THE HANDICAPPED CHILD IN BRITISH COLUMBIA*

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I WILL BEGIN my remarks by defining what I mean by a handicapped child. A handicapped child is one whose disability is severe enough to place him at a disadvantage in obtaining his education, or afterwards in earning his living.

Now handicaps may be physical, such as harelip, cleft palate, club feet or severe heart disease. They may be mental, as seen in the mongolian idiot, the microcephalic idiot or the moron. They may be emotional, as seen in the stammerer, the bed-wetter or the grossly maladjusted. Very often a child has a combination of these disabilities and poor health in addition. For instance, the diabetic child is often emotionally disturbed.

When we realize how important good health is to a normal child, we can easily see that to a handicapped child it is vital. Already at a big disadvantage in life's race, a handicapped child who has good health may just be able to hold his own—without this he will go under. It must therefore be our aim to detect the handicap as early as possible, to keep him in good health, and to start rehabilitation and planning for his future at once. If this is done, it is quite surprising how many children formerly considered to have no salvage value can be made into useful citizens, wholly or partially self-supporting.

The first and most important step in the care of the handicapped child is the early detection of the handicap. We hope this will have been done by the child's own parents or their family doctor, the pædiatrician, the public health nurse or doctor or the school teacher.

In order to facilitate matters we have set up in British Columbia a Handicapped Children's Registry with the help of the Division of Vital Statistics. The registrations are voluntary and the office is situated in the Provincial Health Building at 828 West 10th Avenue, Vancouver. At this Registry are kept particulars of all children in the province who suffer from any degree of handicap. A strong medical advisory panel has been appointed by the B.C. Division of the Canadian Medical Association.

The aims of the Handicapped Children's Registry are:

1. To ascertain the magnitude of the problem, and where the cases are located.
2. To point out the shortages in treatment facilities and to help set up further treatment centres where they are needed.
3. To follow up children in the low income group who have no family doctor or who require help in obtaining treatment.
4. To inform those interested where the best treatment can be obtained for each type of handicapped child.
5. To stress the importance of early treatment and planning, also early vocational counselling and maximum education for each handicapped child so that he will be able to get a suitable job and live a happy and productive life.

The sources of registration of cases are many. When a baby is born the attending doctor must fill in the *Physician's Notice of Live Birth or Stillbirth* form. This gives particulars of the mother, but also the doctor is asked whether the child has had a birth injury or has any congenital malformation. This form goes to the Division of Vital Statistics in Victoria, and in cases where a birth injury or congenital malformation is shown a copy is automatically made and forwarded to the Handicapped Children's Registry for their information. In addition, a copy goes to the local health unit where the child's home is situated, and the public health nurse visits and advises if it is thought necessary. In our province about 35 such cases are registered each month.

Another source of registration is the Well Baby Clinic where the child may be brought for advice on feeding or immunization. The school entrance examination or subsequent school examinations may reveal handicaps which are automatically registered. The school nurse or teacher refers such cases to the family doctor through the parents.

Registration may also occur if the child goes for treatment to one of our hospitals either as an inpatient or outpatient. Certain clinics which treat cerebral palsy and schools for retarded children also co-operate with the Registry. The Canadian National Institute for the Blind (C.N.I.B.) also co-operates, as do the Jericho Hill School (the provincial school for the deaf and blind) and Woodlands School (the provincial school for retarded children). Both these schools are residential. Finally, more and more family doctors are seeking help from the Registry, and their first step is to register their cases. Other agencies such as the Junior Red Cross, the B.C. Crippled Children's Society, the Children's Aid Society, the Social Assistance Branch of the Provincial Health Department and the B.C. Polio Foundation also check with the Registry regarding cases under their care.

We must ask ourselves, now that the cases have been detected, whose responsibility it is to obtain help and how and where they may obtain this help. It is of course the parents' responsibility

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*From the Department of Public Health, Faculty of Medicine, University of British Columbia. A lecture given to second-year medical students, October 1, 1956.
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primarily to keep their child in good health and seek help from their family doctor when they are in trouble. The family doctor will know the whole family intimately and may even have delivered the child originally. He will have the confidence of the family, and this is important. He may deal with the situation directly or call in a pædiatrician or other specialist to help with a particular disability.

It may be, especially in the more remote parts of the province, that no family doctor is available and the public health nurse or doctor is asked to advise. They will arrange for the child to be seen by the Children's Hospital Travelling Clinic or the Child Guidance Travelling Clinic, whichever is indicated.

The Children's Hospital Travelling Clinic is staffed by pædiatricians, orthopædic surgeons and eye specialists from the various hospitals throughout Vancouver. They make regular visits as a team throughout most of B.C. several times each year. They examine, diagnose and advise treatment and follow up cases, and in this way provide invaluable help.

The Child Guidance Clinic operates under the Provincial Mental Health Department. The staff consists of a psychiatrist, psychologists, and psychiatric social workers and nurse and often a speech therapist. They travel throughout most of the province and provide help for emotionally disturbed children referred to them.

If a child has a family doctor, the public health nurse and doctor are careful to refer each case back to him, as they have no wish to disturb the relationship between the family and their doctor. Very often if the family doctor does not wish to make arrangements with a clinic to see a child the public health nurse or doctor will do this for him at his request.

Cerebral palsy cases are referred to a special clinic such as the Greater Vancouver Cerebral Palsy Clinic, situated at the Western Society for Rehabilitation, Vancouver. Here there is a full-time medical director, and each week a special team sits to examine and advise on each case. The team consists of a pædiatrician, a neurologist, a child psychiatrist and psychologist, a social worker and a physiotherapist specially trained in cerebral palsy work. Children attending daily for physiotherapy also are given lessons by well-qualified teachers. Instruction in home care is given for those children referred for diagnosis and short treatment and they are referred back to their own doctors and asked to attend the clinic at regular intervals. A similar service on a smaller scale is available at the Children's Hospital and also at the Lower Vancouver Island Clinic at the Jubilee Hospital in Victoria.

Mentally retarded children who are only slightly below normal attend the regular school in special or opportunity classes where they are available. Those who are more severely affected, having an I.Q. below 50, attend special schools for retarded children. There are 22 such schools at the moment but many more are opening up. Finally, very severe cases of mental retardation or cases where home conditions are unsuitable require to be admitted to Woodlands Residential School for retarded children at New Westminster. This is a provincial government school where excellent training facilities are available. In passing, one might point out that a very thorough examination of the whole child is necessary when the diagnosis of retardation is made. Retardation in walking or speech may be due to cerebral palsy: the deaf child will speak late or not at all; the congenitally blind child will be retarded unless helped. Some children's speech centres develop slower than others. Congenital mental defect makes up the remainder.

Children with minor degrees of hearing loss are seen by their family doctor, who may refer them to a specialist. The public health nurse, parents, or school teacher may be the first to note that the child is inattentive, and to suspect deafness. School nurses are taught to use the audiometer and this is available at all schools. When the hearing loss is great and the home far removed from a treatment centre, it may be necessary to have the child admitted to Jericho Hill School (the provincial school for the deaf and blind). On the other hand the early detection of deafness or hardness of hearing in the first few months of life or at least by the second year allows the child to be provided with a hearing aid with great success. It would appear that all children have some residual hearing left them and if this is made use of at once it will be sufficient for them to use a hearing aid, but if this is neglected the child loses the ability to use this residual hearing. A special clinic has been set up for such children and for the fitting of hearing aids, especially for the low income group, at the Health Centre for Children, Vancouver.

Children with speech difficulties are a problem. Some schools have their own speech therapist and other children attend speech therapists as private patients. Often a visit to a child psychiatrist is indicated. Lately a travelling speech therapist and audiological technician has been made available to the health units in this province. Her duties will be to see those cases referred to her by the public health nurses, to discuss speech and hearing problems with the nurses and the local school teachers when requested, and to indicate which cases should have specialist advice and treatment.

What about children with squints or poor eyesight? Such cases may be referred by their doctor to an appropriate specialist who will prescribe glasses or orthoptic exercises, or operate for squint. Many such cases are seen by the Children's Hospital Travelling Clinic eye specialist. An extensive service is available to the low income staff case at the Health Centre

for Children, Vancouver, and is much used. The C.N.I.B. is the greatest organization for improving the health and welfare of the blind, and Jericho Hill School is used for suitable cases.

Dental problems are dealt with by the child's dentist when he is available. School dental arrangements are being progressively extended throughout the province. In Vancouver a first-class school dental service has been available for the six-year-olds for some time. Orthodontic services are still available only for the very few.

It is not generally known that only 20% of all handicaps are orthopædic in nature—people tend to think in terms of splints and crutches still. Orthopædic problems are dealt with by the family doctor, the orthopædic specialist in larger centres or the orthopædic surgeon attached to the Children's Hospital Travelling Clinic. When such cases require prolonged care, the Children's Hospital is especially indicated, but the children's wards are used in all hospitals to some extent. The Queen Alexandra Solarium on Vancouver Island is also much used for long-stay orthopædic cases.

A diabetic clinic staffed by specialists in this disease has been set up at the Health Centre for Children.

Cardiac handicaps require a special clinic and team. X-ray facilities of a most costly nature are necessary and specially trained pædiatricians and surgeons work together. One such diagnostic and treatment centre is available in Vancouver at the Health Centre for Children.

Epilepsy or seizure clinics are part of a good outpatient department. More requires to be done for this disease.

Lately the B.C. Society for Crippled Children has set up a hostel in Vancouver where children and their parents may stay while attending clinics for assessment and short-term treatment. The same society provides a bus service for handicapped children in the Greater Vancouver, Victoria, and lower Fraser Valley areas to take them to special schools and clinics.

We may ask ourselves in conclusion in what respects we are still lacking in the care of handicapped children in this province. We require a travelling team to thoroughly examine and assess the mentality of each retarded child so that we may be sure that he is given the best education possible. This is not yet available and is much in demand, especially outside Vancouver.

We require a travelling physiotherapist to visit, follow up, assess and report on cerebral palsy children who have been seen and given home treatment from our Vancouver and Victoria clinics. Often when the home is visited it may be found that the treatment is not possible in that home, or is being done incorrectly.

We require a child psychiatrist service. None is available outside the Child Guidance Clinic and Metropolitan Mental Health Service. A university department of child psychiatry would be a real step forward, especially in instructing students in the psychiatric problems of childhood.

We require to have freely available dental clinics and travelling dentists and orthodontic clinics. These are still sadly lacking in many parts of the province and orthodontia is available only for the very few.

We need far more visits from the Children's Hospital Travelling Clinic and the Child Guidance Travelling Clinic.

Handicapped children should be able to attend schools along with normal children to the limit of their ability. They need to adjust themselves early to normal individuals; to keep them isolated and protected is a mistake.

At the moment grossly physically handicapped children have no provision made for their education apart from correspondence courses and occasional tutoring in selected areas. More thought should be given to this problem—it is not sufficiently understood that a handicapped child needs to be much better educated than a physically normal person in order to get employment.

We have very few facilities for giving vocational counselling to the handicapped. A team of experts should be made available in order to assess at an early age the potentialities and possibilities in every handicapped person for future employment. Our present vocational school is not set up to train the handicapped vocationally.

Despite these deficiencies, I think you will agree with me that B.C. has been most forward in providing services for handicapped children. We can be especially proud of the part our public health services have played.

HOW TO WIN AT OBSTETRICS

"The practice and enjoyment of obstetrics calls for certain very definite attributes and abilities. A good obstetrician ought to possess, as basic qualifications, the patience of Job, the paw of a lion, a bottle of Brylcreem and a taste for gynæcology.

"The man who courts immortality should, in addition to the above, either invent some instrument of teeth and bars which would have done credit to the Holy Inquisition or simply do something obvious and put his name on it. This is known as a *manœuvre*.

"Above all, however, the aspiring obstetrician must have a flair for controversy. The rules of the game are simply that nothing must ever be done in obstetrics unless it can be proved that it is less desperately foolhardy to do, say, an R.E. with a morbidity of 0.00004% than a V.E. with one of 0.0005% out of 1000 consecutive deliveries, etc."—*Guy's Hosp. Gaz.*, 70: 429, 1956.

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Clinical and Laboratory Notes

TREATMENT OF ARTERIAL HYPERTENSION WITH RECANESCINE*

A NEW ALKALOID ISOLATED FROM RAUWOLFIA†

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THE USEFULNESS of *Rauwolfia serpentina* in the treatment of human arterial hypertension was first noted by Bhatia[1] in 1942 and by Gupta, Deb and Kahali[2] in 1943. It was only after the report of Vakil[3] in 1949 that the interest of the medical world was awakened to the possibilities of this drug in the treatment of human arterial hypertension. Since the introduction of Rauwolfia on this continent by Wilkins,[4] numerous reports have stressed its hypotensive action as well as its value in the treatment of psychiatric conditions accompanied by anxiety and agitation. Its use in the treatment of psoriasis[5] and other skin conditions and in constitutional leanness has also yielded interesting results.

Rauwolfia serpentina has been used as a crude extract of the whole root or as the total alkaloidal fraction, also called the alseroxylon fraction. Many alkaloids have been isolated from this plant, but until recently only reserpine had been found to be active. Other varieties of Rauwolfia have been studied and from *Rauwolfia canescens* the alkaloid recanescine has been isolated. Since September 1955, we have been interested in the clinical study of this new alkaloid in patients with arterial hypertension. The chemical structure of recanescine is identical with that of reserpine, with the exception that the methoxy group in position 11 is replaced by a hydrogen ion.

SUBJECTS

From September 1955 to April 1956, 26 patients received recanescine. Nine of them were dropped from our study for the following reasons: (1) two patients were lost in the follow-up; (2) five patients received recanescine for less than seven weeks; (3) another patient, a highly emotional and unstable man, refused to take any more recanescine after three days of treatment on account of terrifying nightmares; (4) one patient refused to take any more of the drug after 10 days of treatment, on account of generalized pruritus.

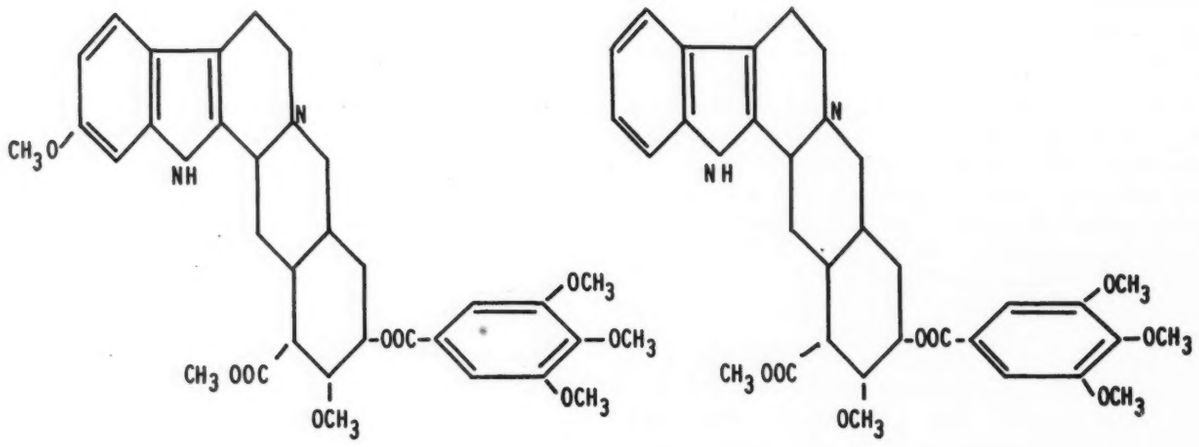

Fig. 1.—Structural formula of recanescine and reserpine.

We were thus left with 17 patients, two men and 15 women, with an average age of 55 years, who received recanescine for an average period of 19 weeks. Sixteen of these patients had a benign stable hypertension, while the other one had already reached the severe stage of essential hypertension. In addition, six patients had marked peripheral arteriosclerosis. All were ambulatory and they were allowed to carry on their

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*From the Clinical Research Department, Hotel-Dieu Hospital, Montreal.

†This alkaloid was kindly supplied to us through the courtesy of Mr. H. G. McWatters and Mr. G. A. Garstone of the Riker Laboratories, Montreal and Toronto. This alkaloid has also been called Canescine, Deserpidine, and Raunormine.

TABLE I.—RESULTS OF ORAL ADMINISTRATION OF RECANESCINE IN ARTERIAL HYPERTENSION

						Side-effects					
	Age	*Duration of treatment in weeks*	*Control blood pressure*	*Blood pressure during treatment*	*Change in blood pressure*	*Nasal congestion*	*Nightmare*	*Drowsiness*	*Depression*	*Increased appetite and weight*	*Dosage*
J.S.	27	12	186/124	141/90	−45/−34			+			1 mg.
D.P.	53	29	181/106	214/115	+33/+9		+	+++	+	+++	1 to 2 mg.
Z.G.	67	22	204/105	219/103	+15/−2						2 mg.
L.B.	31	29	177/99	171/95	−6/−4	+	+	++		+	1 to 2 mg.
A.G.	51	9	207/113	195/104	−12/−9						1 mg.
A.B.	64	12	199/97	223/94	+24/−3			+	++++		1 to 2 mg.
S.B.	60	25	193/107	219/112	+26/+5	++		+	+		2 mg.
C.L.	54	22	215/95	202/101	−13/+6		+				1 to 1.5 mg.
R.B.	53	27	212/111	200/109	−12/−2	+++	++++				1 to 2 mg.
W.C.	68	16	228/114	260/108	+32/−6	++	+		++++		1 to 3 mg.; hydralazine 60 mg.
A.G.	68	8	216/114	188/98	−28/−16						1 mg.
A.G.	71	9	214/120	214/121	0/+1	+					1 mg.
A.D.	47	36	178/114	164/100	−14/−14	+				+	1 mg.
M.L.	51	17	193/109	181/109	−12/0	++++	+	+			1.5 to 3 mg.
J.P.	56	24	188/100	180/87	−8/−13	+		+			1 to 2 mg.
E.R.	56	26	165/90	148/81	−17/−9	+++					1 mg.
P.L.V.	55	10	170/102	160/100	−10/−2	+++	++				1 mg.; hydralazine 200 mg.
Mean 17 cases	55	19	195/107	192/101	−3/−6						

usual activities. Before being given recanescine all were subjected to a complete physical examination with special emphasis on the examination of the fundi and the cardiac, renal and psychosomatic aspects.

In nine patients, the control blood pressure before administration of the drug was taken as the mean of all blood pressure readings reported by referring physicians and of the hourly blood pressure readings taken in the first 36 hours after hospital admission. In the other cases, the control blood pressure represents the mean of blood pressure readings obtained at the patients' weekly or semi-monthly visits to our hypertension clinic during a period of at least eight weeks, during which those patients received no antihypertensive drugs. Recanescine was always administered by mouth in doses ranging from 1 to 3 mg. daily.

RESULTS

As seen in Table I, the oral administration of recanescine produced a significant fall in blood pressure in only four of the 17 patients studied. In two of these the response was excellent, with a fall in blood pressure of 25/34 and of 28/60 mm. Hg. In seven other patients, the fall in blood pressure was not significant. In the last six patients, the blood pressure was even higher during treatment than during the control period. Two patients received in addition small doses of hydralazine. We agree that it may be difficult to assess the value of recanescine when another drug is given concurrently; since these two cases did not show any significant fall in blood pressure with this combination, it certainly can be concluded that recanescine had no hypotensive effect in these two particular cases.

SIDE-EFFECTS

Recanescine in oral doses varying from 1 to 3 mg. per day seems to produce most of the side-effects of the various extracts of *Rauwolfia serpentina* or of its main alkaloid reserpine, and with a comparable incidence. The side-effects most frequently noted were nasal congestion, drowsiness, nightmares, increase in appetite and weight. Of the 17 patients, only three did not experience any side-reactions. The side-effects were mild in five, moderate in four, and marked in five. The most frequent complaints were nasal congestion in 10 patients, nightmares in seven and somnolence and drowsiness in seven.

Depressive symptoms were noted in four cases, and in two of these the depressive state was severe enough to justify the discontinuance of therapy. This incidence of depressive symptoms during administration of recanescine is about equal to that found by Lemieux, Genest and Davignon during Rauwolfia therapy.[6] Three patients noticed a considerable increase in their appetite; one of them even gained more than 30 lb. while under treatment. One patient not included in this study complained of generalized pruritus three days after the beginning of therapy; this disappeared a few days after stoppage of the drug.

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DISCUSSION

Used in dosage equivalent on a weight basis to the one used with reserpine, recanescine has shown a slight hypotensive action, but this hypotensive action seems far inferior to the one that can be produced by *Rauwolfia serpentina* or its main alkaloid reserpine. We agree that the number of our cases is small and that our observation period is too short to permit a definite conclusion, but it appears that recanescine, while having all the inconveniences of reserpine, is a less potent alkaloid.

SUMMARY

Recanescine, a new alkaloid of *Rauwolfia canescens*, was given orally to 17 patients for a mean period of 19 weeks. Only four patients showed a significant decrease in blood pressure.

Recanescine has most of the side-effects of reserpine and with the same incidence.

On an equivalent dose, recanescine appears to be inferior in hypotensive action to reserpine.

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INTERNAL CAROTID INSUFFICIENCY*

A USEFUL PHYSICAL SIGN

DWIGHT PARKINSON, M.D.,*
Winnipeg, Man.

THE TEST DESCRIBED HERE is an exceedingly simple one and no doubt has been thought of and employed by many people. However, it does not appear to be recorded in any of the literature pertaining to the diagnosis of carotid insufficiency.

The differential diagnosis between vascular insufficiency and a brain tumour remains difficult in many instances. Age is no criterion.[1, 4] An abrupt onset of a complete hemiplegia in a previously well individual leaves little doubt. A history of partial hemiplegia or intermittent and transient deficiencies is very suggestive[5] but still poses a very considerable problem in the differential diagnosis. A tumour of the hemisphere may simulate the entire picture. In our experience palpation of the carotids themselves has never revealed the diagnosis even in known cases of complete internal carotid thrombosis. The early appearance of a transient ipsilateral monocular blindness is a very helpful diagnostic symptom.[3] Many, however, do not have this feature. Lowered ipsilateral intraocular tension is reported to be of great diagnostic aid.[7]

The cerebral hemisphere will function through a wide variation in arterial pressure.[8] Voluntary movement is preserved almost down to the point of shock level of blood pressure. Anything below the minimal requirement to a hemisphere will result in a complete hemiplegia but not necessarily death to the cerebral tissue. In any one patient the clinical picture will depend on the amount of collateral circulation available. With a complete carotid occlusion and no collateral circulation the patient is completely hemiplegic. With an adequate collateral circulation there may be no signs whatsoever. It is apparent that a complete thrombosis may exist with a history of intermittent signs and complete recovery between attacks (Case 2). Such a patient must have a collateral circulation which is adequate but barely so. Any manœuvre which tends to reduce the total circulation to the head and hence reduce the available collateral circulation may produce transient symptoms referable to the deprived hemisphere, as has been demonstrated in animals.[2] The seemingly premonitory signs may actually indicate the presence of complete occlusion with barely adequate collateral circulation. There are many instances during the normal day when a person's cerebral blood flow is physiologically reduced. Prolonged immobility at a desk, sudden arising, large food intake, or standing still in a waiting line are everyday examples. In such circumstances a hemisphere functioning only on a low collateral circulation may become further deprived to the point of transient dysfunction.

These features were apparent in three patients originally suspected of a brain tumour with intermittent signs referable to one hemisphere. In each there was angiographic evidence of complete occlusion of the internal carotid artery.

In *Case 1*, in a male aged 54, there was a three-week history of intermittent right-sided hemiparesis and aphasia. Neurological examination revealed right arm weakness and a marked aphasia. Angiography revealed a complete obstruction of the internal carotid at its point of departure from the common carotid. Exposure of the carotid revealed a palpable mass about one-half inch (1.25 cm.) long at this junction. This was removed surgically and verified as a thrombus. There was no significant back flow of blood from the cranial end, although a catheter passed with ease up to a distance estimated to be at the syphon. There was no significant improvement following surgery. The *second case* was in a male aged 63, with intermittent aphasia and right-sided hemiparesis of one week's duration. Angiography revealed a complete block of the internal carotid at its point of

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departure from the common carotid. Contralateral angiography showed irrigation of both hemispheres from the good carotid artery. An oxygen-encephalogram revealed no evidence of a neoplasm and the man was dismissed from the hospital symptom-free at that time. *Case 3* was in a man aged 39, with a two-week history of intermittently progressive right hemiparesis. There was a history of visual loss in the left eye at the onset. Physical examination revealed a nearly complete right hemiparesis and aphasia and a very pale left disc. Angiography revealed a complete obstruction to the internal carotid just beyond its point of departure from the common carotid. The patient became progressively worse and died one week later. Thrombosis of the internal carotid on the left was verified at autopsy.

In contemplating situations such as existed in these three patients, it became apparent that they must be experiencing variations in the available collateral circulation. It was also apparent that if a transient decrease in the collateral circulation could be provoked deliberately with safe control, it should be of great diagnostic value. Thus any manœuvre which would cause such a transient decrease in the collateral to the already impoverished hemisphere should provoke a reappearance of, or aggravation of, the original signs and symptoms. Gradual digital occlusion of the good carotid artery does just that. This deprives both hemispheres of blood, but the normal has a range of reserve as opposed to the previously impoverished hemisphere which becomes suddenly embarrassed to the point of dysfunction.

In each of the three patients mentioned gradual digital compression of the uninvolved carotid produced paræsthesiæ and weakness of the ipsilateral extremities within a matter of seconds. In other words, a patient with thrombosis of the *left* carotid artery with transient signs of numbness and tingling and weakness of the *right* hand exhibits immediate exaggeration of the symptoms when the *right* carotid is partially occluded. The diagnostic value of this manœuvre has been substantiated by Dr. Ross on a patient of his with an angiographically verified thrombosis of the internal carotid artery. It is realized of course that such a manœuvre would give a false negative response in a patient with adequate collateral through the ipsilateral external carotid via the ophthalmic artery or through the vertebral system.

This has been tried in numerous control patients with proven hemispheral tumours who had minimal or transient signs and symptoms referable to the opposite extremity. In none of these did compression of the carotid to the uninvolved hemisphere produce ipsilateral signs and symptoms even when the vessel was compressed to complete occlusion and held. In some there was the expected weakness on the side opposite the compressed carotid as in the usual Matas test.

No patient with middle cerebral thrombosis has been available for this test since the phenomena were noted. It would not be expected to have any effect in such a condition unless the anterior cerebral in the particular patient were supplied predominantly or exclusively from the opposite carotid.

In summary, the picture of carotid insufficiency may produce signs and symptoms often difficult to distinguish from those of an expanding intracranial lesion. When thrombosis of one carotid is suspected, gradual digital compression of the other carotid will produce an almost instantaneous aggravation of the signs and symptoms if the suspicion is correct. False negative responses may be obtained when an adequate collateral circulation exists via the vertebral or the external carotid system but false positive responses seem unlikely.

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EFFECT OF THYROID ABLATION UPON SERUM CHOLESTEROL AND β-LIPOPROTEIN SPECTRUM

The thyroid gland has been consistently implicated in the control of both lipid metabolism and atherogenesis, and it has been known for many years that serum cholesterol levels are influenced by thyroid function. In recent years, several workers have proposed thyroid ablation with radioiodine for the relief of anginal pain due to cardiac insufficiency. The objection has been raised repeatedly that this might accelerate the atherosclerotic process in these patients, particularly of that group in which cardiac insufficiency was caused by coronary sclerosis.

In an attempt to clarify this point, Florsheim, Morton and Goodman (*Am. J. M. Sc.,* 233: 16, 1957) studied the possible effect of reduction of thyroid activity upon atherogenesis by following Gofman's "atherogenic index" and the total serum cholesterol in patients treated with radioiodine. In hyperthyroid patients rendered euthyroid, mild rises in serum cholesterol and atherogenic index were observed. It was considered, however, that these involved only a minimal added risk of atherogenesis by Gofman's calculations. In euthyroid patients *without* atherosclerotic heart disease, the biochemical changes described above following therapeutic thyroid ablation were also of small magnitude. However, in euthyroid atherosclerotic patients, in whom thyroid ablation was carried out, there were generally greater rises in both serum total cholesterol and atherogenic index. This would suggest that therapeutic thyroid ablation in euthyroid patients with atherosclerosis is a potentially dangerous procedure. However, the writers feel that the excellent results obtained by many workers in rehabilitating patients through the relief of cardiac decompensation, congestive failure and anginal pain by this method, certainly seem worth any added small risk of increased atherogenesis.

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Mar. 15, 1957, vol. 76

The Canadian Medical Association Journal

published twice a month by
THE CANADIAN MEDICAL ASSOCIATION
Editor: S. S. B. GILDER, T.D., M.B., B.Sc.
Managing Editor: T. C. ROUTLEY, M.D., F.R.C.P.[C.]
Assistant Editor: M. R. DUFRESNE, M.D.
Editorial Offices: 150 ST. GEORGE ST., TORONTO

(Information regarding contributions and advertising will be found on the second page following the reading material.)

NO MAN IS AN ISLAND

> *"No man is an island intire of itselfe; every man is a peece of the continent, a part of the maine; if a clod bee washed away by the sea, Europe is the lesse, as well as if a promontorie were, as well as if a mannor of thy friends or of thine owne were; any man's death diminishes me, because I am involved in mankinde; and therefore never send to know for whom the bell tolls; it tolls for thee."*

"No man is an island", said Donne, and few will contradict him. Anchorites are in short supply, even in the highly individual medical profession, and the need for a helping hand, for a little advice, for a sense of belonging to a family, grows with the growing complexity of our profession.

In this issue we pay our modest tribute to the Toronto Academy of Medicine, which for 50 years has helped to fill the fundamental need of medical men for fellowship and mutual aid. Now 50 years is perhaps not a very long life for a scientific society, even on this continent. The American Academy for Arts and Sciences began its activities in Boston in 1779, and in 1788 the New Haven County Medical Society published *Cases and Observations*, the first volume of medical society transactions in North America. But the Toronto Academy can also claim a longer life than is apparent, for it grew out of a collection of 19th century societies which in their turn expressed the need for fellowship among the early physicians of Toronto.

It would seem that the medical society arose primarily out of the need for mutual aid among physicians, and indeed one of the objects of the Toronto Academy is stated to be "the cultivation of harmony and good feeling among its Fellows". But medical societies have done much more than that. They have helped to maintain standards in professional practice, and it is noteworthy that in such centres as Boston and New York the medical society preceded the medical school. They have helped to educate their members, not only through free debate or organized conference but also through publications. The *Proceedings of the Royal Society of Medicine* of London can be read with profit by any physician, and in some scientific societies the matter has been taken further and a medium provided for rapid communication of new work. The *Proceedings of the Society for Experimental Biology and Medicine* with a membership of only 2000 is read throughout the world, and is indispensable to research workers in the biological sciences. The Toronto Academy in recording as an object of its existence "the promotion and maintenance of an efficient library" recognized the value of yet another educational tool and has won for itself an important place in the library services of Eastern Canada. In this, as in its other activities, the Academy acts as a complement to and not a competitor with similar university services.

There is another aspect of medical society life which tends to be overshadowed by the functions of fellowship and education. It is simply stated among the objects of the Academy as "promotion of the corporate influence of the profession in relation to the community". The vital question of today for the medical profession in Canada is the pattern of future provision of medical care to the community. Universal health insurance may be just around the corner. Have we thought about the implications of this? Have individual practitioners made up their minds about the type of medical care which will benefit their community and their nation? Have they expressed their opinion at the level where collective opinion is formed, the local medical society, so that the local society can tell its provincial society what it thinks? Does the local society know whether it should oppose universal health insurance, or any part of it, or has it expressed its willingness to work out, in the light of its members' views, the best form of health insurance? Or are many of our colleagues still pretending to be "islands"?

By the time this appears in print, the Toronto Academy of Medicine will have held (March 13) a panel discussion on health insurance. In holding this discussion it will have helped to fulfil one of its avowed objects—education of the profession in relation to the community.

But having laid before the membership certain facts and views about health insurance, a medical society still needs to get back from the individuals their reaction to those facts and views. Does your medical society know your opinions on health insurance, doctor? Or are you just being an island? If so, you must not complain if some of the unpleasant things that sometimes happen to islands come your way.

The medical society exists to promote fellowship—that is easy enough. It exists to promote education—that is not too difficult either. But it also exists to promote the corporate influence of the profession on the community—and that is pretty hard unless the members get together to determine that corporate influence. If there are any bells tolling for medical freedom, doctor, they are tolling for you!

Editorial Comments

SULFONYLUREAS AND RELATED COMPOUNDS IN EXPERIMENTAL AND CLINICAL DIABETES

Interest in an oral preparation of insulin or an oral drug that would substitute for it has arisen periodically ever since the discovery of insulin. Most of these drugs have been proven to work through some toxic effect on the liver. A series of drugs derived from the sulfonamides have recently given rise to renewed interest of great magnitude. Carbutamide (BZ 55), one of the most promising, has already proven too toxic, but tolbutamide (U 2043 or Orinase) has so far been much safer.

The effects of these drugs were discussed at a conference staged by the Section of Biology, New York Academy of Sciences, on Feb. 14 and 15, 1957. At this Conference were assembled foremost research workers in the field from Europe, North America and South America. The major effort was devoted to reports on the mechanism of action of the drugs and the first two papers keynoted this. Prof. Loubatières of Montpellier produced evidence that the drugs worked through the pancreas, probably the beta cells of the islets of Langerhans, and Professor Houssay followed with evidence of an extrahepatic mechanism. Much difficulty in interpreting the evidence for and against these two views arises from the very high dosage used in animals as compared with the usual dose (3 mg./kg.) used in humans, the differing results of acute and chronic experiments, and the variation in species. This last is of most importance in the human, of course, where the nature of diabetes is least understood and probably often quite different from that in any other species studied.

The evidence in favour of an action through the beta cells of the pancreas was in part as follows:

1. The drugs consistently produced hypoglycæmia in normal dogs but not in depancreatized dogs.

2. Tolbutamide (Orinase) increased oxidation of glucose in normal animals but not in alloxan diabetic animals, either with or without supplementary insulin. Insulin alone, however, did increase oxidation of glucose in alloxan diabetic animals.

3. A greater insulin effect could be induced by giving tolbutamide into the pancreatic vein than into either the hepatic or femoral veins.

4. Studies with insulin tagged with radioactive iodine failed to show any alteration in the rate of degradation of insulin administered exogenously; this finding might agree with either increased pancreatic liberation of insulin or increased peripheral effect, but certainly not an action through blocking of insulinase activity of the liver.

5. Histologically a marked degranulation of the beta cells of the islets of Langerhans was demonstrated after several days' administration of tolbutamide and this was taken to indicate an increased secretion of insulin.

6. An increase in the weight of the islets in the pancreas was demonstrated following chronic administration of the drug.

Evidence for an extrapancreatic mechanism, however, was put forward by other investigators.

1. Hypoglycæmia was produced in a small percentage of depancreatized dogs and in a large percentage of depancreatized dogs maintained on suboptimal doses of insulin. The dose level of insulin to obtain this alteration was reported as quite critical.

2. Tolbutamide prevented the increased hepatic liberation of glucose when fructose was given intravenously, suggesting that the drug acts by decreasing the rate of glucose synthesis or release from the liver.

3. Insulin increased the disappearance of certain pentoses from the blood by three times the normal rate, whereas tolbutamide had no effect in man.

The least convincing evidence of all was that the drug produced an insulin effect in peripheral tissues, i.e., muscle. Some investigators claimed to have demonstrated a blood sugar lowering effect in the eviscerated dog, i.e., with both pancreas and liver removed, though only in the presence of added insulin. This was not confirmed by others.

There was evidence that the drug did not block the action of glucagon, the hyperglycæmic factor considered to be found in the alpha cells of the islets of Langerhans. Some have claimed that these drugs act by destruction of the alpha cells of the islets of the pancreas, but no evi-

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dence to support this was forthcoming and there was evidence against it.

Although an effect had been demonstrated in animals in which the islets of Langerhans had been destroyed by one means or another, attention was drawn to the fact that the drug is ineffective in children who have had diabetes over a year or two and who are generally considered to have no remaining ability to form insulin. No case has been published and no one at the meeting knew of a case of pancreatectomy in a human where the drug had been effective.

It is estimated that tolbutamide has been used in approximately 10,000 patients over the last nine months or so in North America and an equal number over a longer period of time in Europe. The clinical results suggested that the drug was quite effective in controlling hyperglycæmia and glycosuria in a fairly high percentage of the older diabetics. The toxic effects of its congener, carbutamide, were on the skin, hæmopoietic system (leukopenia) and liver (jaundice, hæmorrhagic effects). For this reason particular attention was paid to these dangers with tolbutamide. Although a marked interference with bromsulphalein excretion in experimental animals had been shown with tolbutamide, this was not confirmed in humans with or without diabetes and with or without liver disease. Indeed the incidence of toxicity with tolbutamide so far has been low, and those side-effects noted have not been serious.

Summary: At the present time the action of the sulfonylureas appears to be at different sites although its exact mechanism is far from established. Clinically the preparations have appeared of considerable value, although this may not be borne out in more prolonged study. Toxicity of carbutamide has been excessive; although this has not been the case with tolbutamide, the latter must be used with great caution for a considerably longer period of time before its safety is established.

Whether any of these drugs proves ultimately to have a place in the management of diabetes mellitus in man or not, they must be credited with giving rise to a great renewal of interest in investigation of carbohydrate metabolism and the nature of diabetes. W. T. W. CLARKE

CHEMOSURGERY OF CUTANEOUS CARCINOMA

Articles on this subject continue to appear in various journals[1, 2, 3] and it is felt that a review of the whole subject is needed.

Chemosurgery is the term coined by Mohs for his technique of the microscopically controlled removal of skin cancers. The use of "cancer pastes" for skin cancers has a long history, dating back to the 18th century. In the 19th century the application of acid nitrate of mercury after thorough curettage was introduced by Sherwell. Mohs has added the important factor of microscopic control and has developed a paste which not only kills and fixes cancer tissue but also keeps it intact for microscopic examination.

The method has three stages: (1) chemical fixation of the tissue *in situ*; (2) excision of a layer of fixed tissue; (3) systematic microscopic examination as a guide to further treatment. The fixative is a specially prepared zinc chloride paste which is applied to the visible tumour. The lesion is carefully mapped and divided up into 1-cm. squares. By the use of dyes and numbers these squares can be identified. Microscopic examination of the most inferior portion of these squares is then carried out. If the tumour is still present, the process is repeated in that area of the tumour where the fragment originated. By varying the amount of zinc chloride paste applied, the depth of tissue fixed can be altered. When a large bulky tumour is being treated, larger amounts will be applied; when following small cancerous pseudopods, only a small amount will be used. In this way Mohs claims that only 1-2 mm. of normal tissue beyond the tumour needs to be destroyed. Chemosurgery can be done on an outpatient basis. As the excised tissue is already fixed, bleeding is no problem. Pain after application of the fixative is minimal and can be controlled by acetylsalicylic acid and/or codeine. No general anæsthetic is used. Mohs reports four deaths in a series of 1554 cases of cancer of the skin. One was due to treatment, the other three to intercurrent disease. The five-year cure rate for 1071 cases of basal cell carcinoma was 98.2%, for 483 cases of squamous cell carcinoma, 84.8%. These cases include not a small percentage of tumours which recurred following radiotherapy and/or excisional surgery.

Mohs and others recommend the use of this technique in skin cancers which have recurred after radiotherapy or excisional surgery, or both; where the patient is a poor surgical risk and the operation cannot be performed under local anæsthesia; or where the surgical removal would have to be of the heroic type. Lunsford *et al.* have adapted this as a routine procedure for the treatment of skin cancers. As it is a highly technical, time-consuming procedure, it remains to be seen whether or not its routine use is feasible or even warranted. Another and perhaps more important factor, in the long run, is the information about cancer spread which can be obtained by making moulds of removed cancerous tissue. These show that slender strands and sheets of cancer may follow specific structures, such as fascial planes or embryonic fusion planes.[4] Also one is impressed by the frequency and extent of pseudopod formation which may occur from a seemingly small visible tumour. Unless multiple sections are prepared, these pseudopods may be missed on routine patho-

logical examination. The importance of re-evaluating present radiotherapeutic and surgical approaches to carcinoma of the skin on the basis of the above findings is obvious.

There are no real contraindications to this procedure. There are numerous disadvantages, mostly of a technical nature. A pathology laboratory and a trained technician must be readily available. The procedure is neither dramatic nor heroic, but is tedious and time-consuming. It is desirable that the operator be able to interpret his own microscopic sections.

To summarize, it seems that chemosurgery has a place in the treatment of selected cases of cutaneous carcinoma. The method is highly technical and time-consuming. It is possible that information obtained about the spread of cancer in the skin may be of greater importance than the acceptance of the technique itself.

ROBERT JACKSON

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OLEANDOMYCIN

> "In vain shalt thou use many medicines: for thou shalt not be cured"—*Jeremiah* 46:12.

The prodigal use of the "older" antibiotics is bringing with it the state of affairs envisaged by the prophet Jeremiah. Increasing concern with problems of drug resistance by the wily pathogens makes the advent of new and effective antibiotics of general interest. Among these is the compound oleandomycin (Romicil), so far investigated in Switzerland and the U.S.A.

Oleandomycin was isolated from a strain of *Streptomyces antibioticus* and is used in the form of its phosphate. It has an antibiotic spectrum similar to those of penicillin, erythromycin and carbomycin, and is given orally in doses of 1.5-2 g. daily.

A careful clinical study of the antibiotic has recently been published by physicians in a Swiss hospital (Siegenthaler *et al., Deutsche med. Wchnschr.*, 81: 2074, 1956) and their results are worth noting. They report treatment of 216 cases during a period of 14 months. They administered oleandomycin (Romicil) in 250-mg. capsules six-hourly, and are not yet convinced that parenteral administration will show any advantages over the oral route. Oleandomycin was found to have an excellent action in bacterial pneumonias; it was also very valuable in skin infections due to staphylococci resistant to penicillin. Good results were obtained in the treatment of purulent bronchitis associated with asthma and cardiac failure. The antibiotic had a good action in leptospirosis (three cases), but a poorer effect than tetracycline in Q fever.

There was apparently a favourable effect in certain virus infections, and also in certain infections with Gram-negative bacteria such as *Proteus*, but the numbers of cases treated are insufficient to make a definite pronouncement on this.

In cases of pneumonia it was noted that *in vitro* resistant organisms obtained in the sputum did not form a good guide to results of treatment, since in several cases good results were obtained where the organism was resistant and vice versa.

The antibiotic spectrum of oleandomycin was very similar to that of erythromycin, but there was not a complete crossed resistance and in some cases one antibiotic produced results when the other would not. Many cases of furunculosis and other staphylococcal infections with organisms resistant to penicillin were successfully treated with oleandomycin. Two carriers of diphtheria bacilli responded favourably.

There was only one case of enterocolitis among the 216 treated, and no other side-effects were noted, even though in some cases dosage continued for more than a month.

Nevertheless the authors warn against the use of this new antibiotic except in cases of penicillin resistance or hypersensitivity, since sooner or later a secondary induced resistance is sure to occur. They noted this themselves in three cases. The question will also arise whether oleandomycin should be combined with a synergist to reduce the likelihood of onset of resistance. Oleandomycin sounds like a welcome newcomer to the field; we can only hope that a little restraint will be exercised with these new antibiotics and that they will be given *in correct dosage* and for the *correct indications*. If not, Jeremiah's complaint will surely be justified.

FEMALE MORTALITY FROM CANCER OF THE BREAST AND GENITAL ORGANS

M. Pascua, M.D., Director-Consultant on Health Statistics, World Health Organization, presents in the *Bulletin of the World Health Organization* (15: 5, 1956), the recorded mortalities from breast cancer, uterine cancer, and cancer of other genital organs (female), in 19 countries. These show wide differences between different countries. The rates of recorded mortality from breast cancer in 1953, per 100,000 females, ranged from 3.3 in Japan to 23.9 in Canada and 35.7 in England and Wales. The rates for 13 other countries were near that for Canada but the rates for Italy, Spain and, as indicated, Japan, were very much lower. As Mitsuo Segi *et al.*[1] of Tohoku University, Sendai, Japan, have shown and Pascua confirms, some at least of the wide differences between the rates

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are *not* attributable to differences in the age distribution of the populations. The rates of recorded mortality from uterine cancer show less spread. They ranged in 1953 from 9.7 in Spain, 10.9 in Ireland (Republic), 12.9 in New Zealand, 14.1 in Canada, 17.2 in England and Wales to 22.6 in Denmark. In contrast to the exceptionally low Japanese rate for cancer of the breast, the Japanese rate for uterine cancer (17.2) was of the order of the rates in most of the other countries.

In the data analyzed—crude mortality rates from 1920 or later to 1953 and a few age specific rates—the author does not find any decided pattern of decrease in mortality from breast cancer in any country over the period studied but does find some definite though inconsistent declines in the rates of mortality from uterine cancer. In an earlier paper of this series, he has pointed out the many uncertainties in such data and the hazards in using them for comparison of time or place without the most critical consideration of possible defects. "The mere publication," he says, "of a set of documentary national tables on cancer mortality without any comments would not be permissible, as it might easily lead in the hands of the general public—or even in those of the general medical profession not familiar with statistical methodology—to faulty interpretations and conclusions regarding the subject, as experience has already demonstrated, with considerable damage done, in consequence, to the scientific side of medical statistics."[2]

But the very wide differences between the recorded mortality rates from breast cancer, particularly in different countries, some of which differences having been shown *not* to be attributable to differences in the age distribution of the populations, call urgently for investigation. Are the differences real or artificial? If real, are they due to differences in genetic inheritance, or to differences in habits, environments, etc.? They provide a promising lead to the study of cancer or cancers.

REFERENCES

1. Cancer Mortality Statistics in Japan, 1900-1954. Special Report, 1955.
2. World Health Organization: *Epidemiol. & Vital Statist. Rep.*, 5: 1, 1952.

"HYPERSENSITIVITY" AND "ALLERGY"

The inverted commas so frequently found when the word hypersensitivity is used in conjunction with the multitude of diseases associated with angiitis betray our awareness that the union has not yet been proved legal. The immunologist has still to provide an exact explanation of what happens when foreign protein becomes a damaging agent, and often the actual presence of foreign protein or antigen only rests on assumption.

For some years also the morbid anatomist has been in the doldrums in regard to the classification of the "hypersensitivity" diseases. One of the troubles is the limited nature of changes which can take place in arteries.

Arteries have several coats and in each coat there can occur necrosis, various degrees of hyperplasia of connective tissue, infiltration of fluid and cells, and fibrinoid changes in ground or cement substance. The blood in the lumen can clot rapidly or slowly and the clot can age or change into fibrous or vascular tissue according to the growth potential of intimal cells.

The artery has to be content with this simple range of reactions, and all diseases from infarction to rheumatic arteritis must be expressed in them. It is for this reason that syndromes are usually differentiated according to the particular circulatory system or the size of the vessels involved, but in a disease like disseminated lupus erythematosus there is little limit to the combinations and range of vessels affected from the heart downwards. Furthermore, though syndromes may seem satisfactorily distinct on the basis of geographical differences, that is no proof that they are not related causally. One has only to compare the picture of miliary disseminated tuberculosis with that of chronic fibrocaseous tuberculosis of the lungs to realize how dependent we are on a knowledge of causal agents in the final synthesis.

The problem really comes to attention when we are faced with cases which are hard or impossible to fit into any known category. This is still common and one of the reasons for it is that our interpretations have been too often based on end results of fatal illnesses and have ignored the intercurrent lesions which may go through their full evolution in non-fatal illnesses. One is therefore prepared to welcome the recent article by McCombs *et al.*[1] which objectively describes the findings in a series of 30 living patients with "allergic" vasculitis who did not have systemic lupus erythematosus or periarteritis nodosa. Eighteen of these cases could be classified as having one of the following clinical syndromes: contact dermatitis with generalized sensitization, urticaria, vascular purpura, erythema nodosum or dermatomyositis. The remaining 12 cases—no less—could not be classified in any recognizable syndrome. Fifteen of the 30 patients had apparently recovered completely from their episodes of vasculitis, although features of some of these cases might have led to an erroneous diagnosis of lupus erythematosus or polyarteritis nodosa.

Cortisone and other adrenal steroids had an almost specific effect on the vascular lesions and promoted healing and sclerosis.

The 30 case reports in this paper are trimmed fine but are as interesting as is the text.

REFERENCE

1. MCCOMBS, R. P., PATTERSON, J. F. AND MACMAHON, H. E.: *New Eng. J. Med.*, 255: 251, 1956.

Medical News in brief

ALCOHOL-INDUCED PAIN DUE TO CARCINOMA

That patients with Hodgkin's disease may suffer pain after taking alcohol is now fairly well documented, though this occurs only in a small proportion of all patients with the disease. James and his colleagues from Cardiff (*Lancet*, 1: 299, 1957) now report two cases of carcinoma, one in the thymus and the other in the pancreas, in which pain in the chest was either induced or increased in severity by taking quite moderate amounts of alcohol. This odd symptom should be systematically enquired for and should not be assumed to be diagnostic of Hodgkin's disease.

ISONIAZID IN MULTIPLE SCLEROSIS

It looks as if another disappointment is definitely in store for sufferers from disseminated sclerosis. In 1954 the suggestion was made in a preliminary report that isoniazid had a favourable effect on the course of this disease, but several negative reports have subsequently been received, including that of Dekaban in this *Journal*. In *J. A. M. A.* (163: 168, 1957) there are now two reports of studies conducted by Veterans Administration hospitals in the United States. Isoniazid was given in these two studies in 100-mg. capsules three times a day and compared with a placebo for its effect. In the first study 186 patients were investigated over a prolonged period, and a detailed analysis of the observations led to the conclusion that isoniazid has no beneficial effect on the course of multiple sclerosis. In the second study, with a smaller series of patients and with a follow-up of patients reported on two years ago, it was clear that the exacerbation rate per patient year was roughly the same whether isoniazid therapy was continued or not.

UNSUSPECTED DRUG ALLERGY

In a paper read to the Académie Nationale de Médecine, Paris, (*Bull. Acad. nat. méd.*, 141: 32, 1957) Sidi, a Paris allergist, complains about the increasing incidence of drug sensitization in the population. At present, 50% of the cases of eczema which he sees are due to this cause. In his clinic patients found sensitive to any particular drug are given a list of related products which they should avoid. For example, patients sensitive to sulfonamides are warned against other members of the paraphenylenediamine group such as synthetic local analgesics. Similarly those sensitive to neomycin are warned against streptomycin. But this is not all. Sidi also complains that some laboratories put out preparations without giving their complete composition. One ingredient to which the patient may be sensitive may not even be mentioned in the formula. The commonest offender is phenolphthalein in laxatives, which in a sensitized subject may produce severe reactions. Another hazard stems from the use of procaine in such products as liver extract. Out of 27 patients sensitive to procaine, eight gave a positive reaction to a certain brand of liver extract and five had a severe reaction, due certainly to the procaine which was not even mentioned in the formula. Preparations of hydrocortisone have been known to cause sensitization reactions because of the addition of a little chloramphenicol. It is therefore extremely important for pharmaceutical manufacturers to include all the constituents of their preparations on the label, and for prescribing physicians to read this list of constituents carefully.

FROZEN SECTIONS IN CANCER DIAGNOSIS

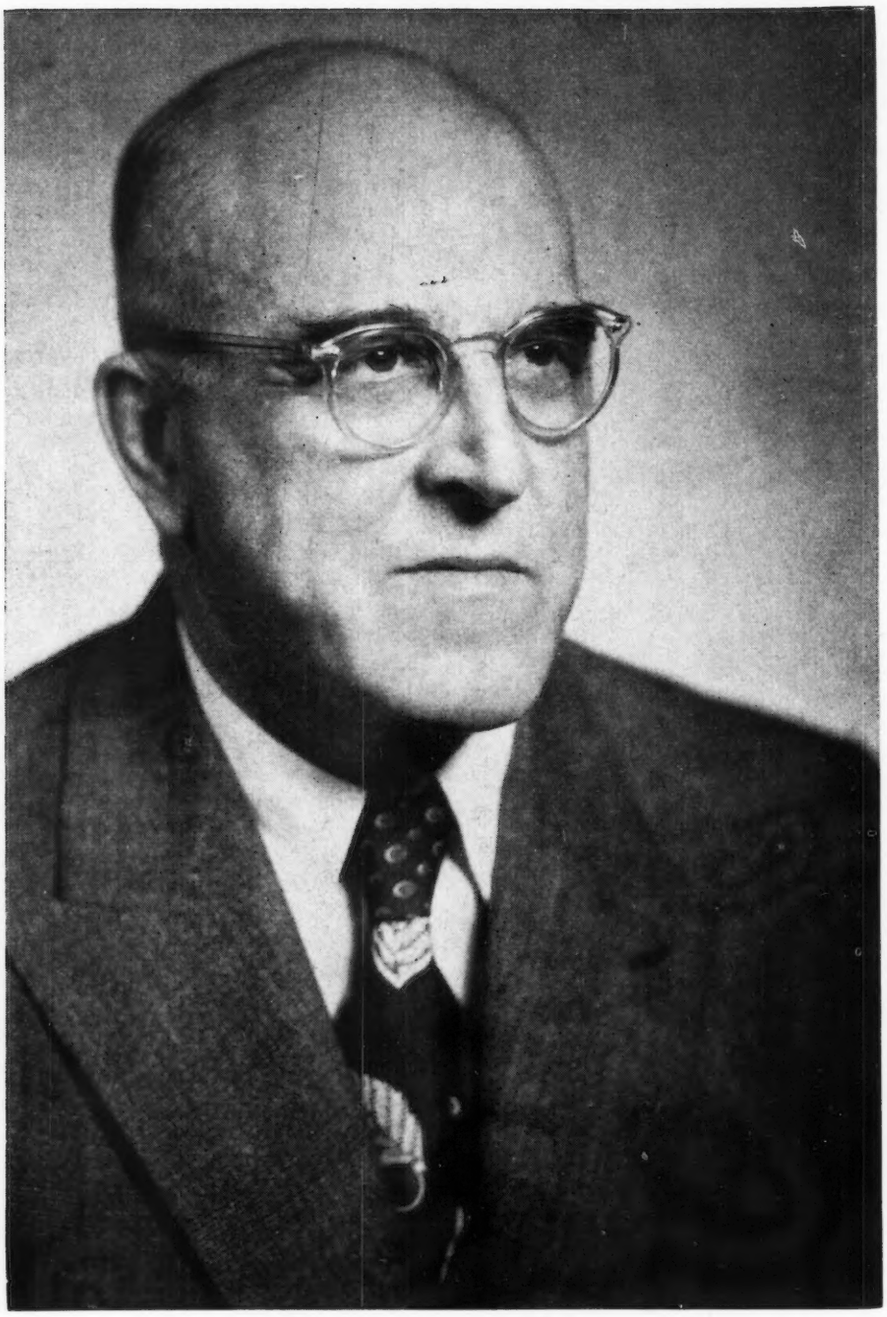
Opinions on the value of the frozen section in cancer diagnosis at operation have varied between condemnation and hearty approval. Jennings and Landers of Detroit (*Surg., Gynec. & Obst.*, 104: 60, 1957) discuss the value of frozen section technique, basing their views on 412 instances in which it was used to determine presence or absence of malignancy. Out of 212 breast biopsies a definite diagnosis of malignancy was made in 36 and of benignancy in 164; in 12 the nature of the lesion was doubtful and the surgeon was advised to await permanent sections. In two cases a false diagnosis of benignancy was made. In no case was the opposite error made. A definite diagnosis was made in 81 out of 83 instances from frozen sections of endometrial curettings. Out of 36 cases of cervical biopsy, only one erroneous diagnosis of benignancy was made. Summarizing the whole series, a definite diagnosis of benign or malignant was made in 94.9%; a false negative diagnosis in six instances and a false positive in none.

For proper employment of frozen sections, the surgeon must understand the limitations of the method; he must not ask for more information than it can give, and must accept the pathologist's refusal to make a diagnosis in a doubtful case. The surgeon must submit an adequate biopsy and give pertinent clinical information. The pathologist must be thoroughly familiar with the method and use it frequently. The technician must not be rushed and the pathologist must study the gross specimen before sectioning. This method is unsuitable for any difficult histological diagnosis. The diagnosis of malignancy must be absolutely definite.

RESERPINE IN CHRONIC ALCOHOLISM

A study from the Peter Bent Brigham Hospital Alcoholic Clinic, Boston, (*J.A.M.A.*, 163: 426, 1957) suggests that reserpine given in a dose of 0.25-0.5 mg. by mouth twice a day will produce a significant improvement in more than half of the patients who receive it. Reserpine was compared with a placebo in a study of 180 chronic alcoholics on ambulatory treatment. The double-blind method was used, and results were strongly in favour of reserpine, since only 13% of the patients given the placebo showed any significant improvement.

(Continued on advertising page 39)



MORLEY A. R. YOUNG, M.D.
President-Elect
Canadian Medical Association

A Message to Members from the President-Elect

EDMONTON, ALBERTA, beckons each and every one of you to join with us in this the Ninetieth Annual Meeting of our Association. It is 45 years since Edmonton last had the pleasure of being host to the C.M.A., and so for practically every one of us it is the first time we will be able to enjoy Alberta hospitality in a northern atmosphere. I hope that many of you will be able to do so.

The various committees in connection with this meeting have been hard at work for some months. We feel that a good program is well on its way to completion. From the scientific point of view there will be two and a half days of live TV programs covering a wide field of medical and surgical subjects. Following this there will be another two and a half days of scientific presentations in keeping with the usual high standard of addresses and round table discussions characteristic of our Annual Meetings.

Entertainment for the doctors and their wives, at suitable times, and also for the ladies alone, when the doctors are busy, is being well taken care of.

Canada is a big country. It is 2800 miles and more from Newfoundland to British Columbia and some might ask, why go to Edmonton, why travel so far? May I reply, because of loyalty to your organization; because of many problems which face the profession at this time and to which you may be able to give some aid in solution; because of scientific interest; because you and your wife need a change, because the Everlasting Hills are close to Edmonton and a trip to Jasper, Lake Louise and Banff should not be entirely forgotten; and because we wish to have the pleasure of welcoming you to the Ninetieth Annual Meeting in Edmonton.

MORLEY A. R. YOUNG,
President-Elect.

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PRELIMINARY PROGRAM

NINETIETH ANNUAL MEETING

Canadian Medical Association

EDMONTON, JUNE 17-21, 1957

The 90th Annual Meeting of The Canadian Medical Association will be held in Edmonton, June 17 to 21, 1957.

The General Council will meet on Monday and Tuesday, June 17 and 18, and the Annual General Meeting will be held on the evening of Wednesday, June 19, at the Macdonald Hotel.

Preparations for a very complete program of business, scientific and social sessions are well advanced. Members are urged to apply at once for accommodation in Edmonton, using the Housing Application Form on page 505 of this issue.

A feature of the scientific program will be clinical presentations in colour television, which will be displayed on the first two and one-half days of the meeting. The final half of the week will consist of general sessions, round table conferences and sectional meetings. The annual meetings of a number of affiliated specialist societies will complete a busy medical week in Edmonton.

Clinical Program in Colour Television

Sunday, June 16

PUBLIC FORUM

7.00 p.m.

Appendectomy

Moderator: DR. S. KLING, Edmonton
Surgeon: DR. R. JOHNSTON, Edmonton
Panel: DR. R. M. PARSONS, Red Deer
DR. R. BLACKSTOCK, Edmonton
MR. SID LANCASTER, CFRN, Edmonton

9.00 p.m.

Appendectomy

Moderator: DR. M. SEREDA, Edmonton
Surgeon: DR. B. MICHALYSHYN, Edmonton
Panel: DR. J. SMITH GARDNER, Calgary
DR. H. A. LLOYD, Edmonton
MR. JERRY FORBES, CHED, Regina

Monday, June 17

Morning

Hernia Repair

Moderator: DR. H. RICHARD, Edmonton
Surgeon: DR. M. GEISSINGER, Edmonton
Panel: DR. L. FRATKIN, Vancouver
DR. R. BOILEAU, Edmonton
DR. T. S. WILSON, Edmonton

Operation on the Heart

Moderator: DR. W. G. BIGELOW, Toronto
Surgeon: DR. J. C. CALLAGHAN, Edmonton
Panel: DR. C. S. DAFOE, Edmonton
DR. G. I. BELL, Edmonton
DR. J. DVORKIN, Edmonton

Afternoon

Cardiac Arrest

Demonstrators: DR. R. C. HARRISON, Edmonton
DR. D. F. CAMERON, Edmonton
Panel: DR. C. A. ROSS, Edmonton
DR. J. W. PEARCE, Edmonton

Dermatology Clinic

DR. P. L. RENTIERS, Edmonton
DR. I. HARDIN, Edmonton
DR. A. A. DIXON, Calgary
DR. A. G. DUNCAN, Calgary

Obstetric Forceps

Moderator: DR. R. HORNER, Edmonton
Panel: DR. D. H. HUSEL, Edmonton
DR. E. B. QUEHL, Edmonton
DR. J. A. BOYD, Edmonton

Varicose Veins and the Post-Phlebitic Limb

Moderator: DR. R. A. MACBETH, Edmonton
Panel: DR. W. F. M. HALL, Edmonton
DR. J. E. MITCHELL, Red Deer
DR. A. A. HAIG, Lethbridge
DR. R. J. JOHNSTON, Edmonton

Tuesday, June 18

Morning

Gastrectomy for Duodenal Ulcer

Moderator: DR. F. D. MOORE, Boston
Surgeon: DR. G. L. WILLOX, Edmonton
Panel: DR. A. W. HARDY, Edmonton
DR. R. C. DICKSON, Halifax
DR. J. A. L. GILBERT, Edmonton

Cholecystectomy and Cholangiogram

Moderator: DR. H. R. ROBERTSON, Vancouver
Surgeon: DR. J. M. LEES, Edmonton
Panel: DR. R. E. JESPERSEN, Edmonton
DR. C. A. ALLARD, Edmonton
DR. B. MICHALYSHYN, Edmonton

Afternoon

Fracture Rounds

Moderator: DR. D. C. JOHNSTON, Edmonton
Panel: DR. F. G. DAY, Edmonton
DR. J. P. MOREAU, Edmonton
DR. R. S. HENDERSON, Edmonton

Physical Signs in Neurological Disease

Moderator: DR. T. J. SPEAKMAN, Edmonton
Panel: DR. A. A. BAILEY, Saskatoon
DR. C. W. TAYLOR, Calgary
DR. C. E. G. GOULD, Vancouver

Diagnostic Methods and Treatment of Thyrotoxicosis with Radioactive Iodine (A Demonstration)

Moderator: DR. ANDREW CAIRNS, Edmonton
Panel: DR. A. M. EDWARDS, Edmonton
DR. D. R. WILSON, Edmonton
DR. P. H. T. THORLAKSON, Winnipeg

Rehabilitation of the Hemiplegic
Moderator: DR. M. T. F. CARPENDALE and members of Physiotherapy Department, University Hospital, Edmonton

Wednesday, June 19

Morning

Hysterectomy
Moderator: DR. T. R. CLARKE, Edmonton
Surgeon: DR. D. C. RITCHIE, Edmonton
Panel: DR. J. Ross VANT, Edmonton
DR. O. A. SCHMIDT, Winnipeg
DR. A. H. MACLENNAN, Edmonton

Diverticulitis or Cancer of the Bowel—Bowel Resection
Moderator: DR. W. C. MACKENZIE, Edmonton
Surgeon: DR. W. S. ANDERSON, Edmonton
Panel: DR. E. C. JANES, Hamilton
DR. C. W. CLARK, Winnipeg
DR. D. W. B. JOHNSTON, London

Preliminary Scientific Program

SESSION A

2.00 - 5.00 p.m. Banquet Room

Chairman: DR. D. R. WILSON, Edmonton

Poliomyelitis Vaccination
DR. R. D. DEFRIES, Toronto

The Management of the Cardiac Arrhythmias
DR. P. P. DAVID, Montreal

The Alberta Perinatal Death Study
DR. L. C. GRISDALE, Edmonton

Headache
DR. A. A. BAILEY, Saskatoon

Recent Advances in Dermatological Therapy
DR. A. G. DUNCAN, Calgary

Needless Loss of Vision—Its Prevention
MR. F. W. LAW, London, England

SESSION B

2.00 - 5.00 p.m. Ballroom

Chairman: DR. H. L. RICHARD, Edmonton

Management of Acute Injuries to the Chest
DR. M. B. PERRIN, Winnipeg

The Early Treatment of Head and Spine Injuries
DR. T. J. SPEAKMAN, Edmonton

Ano-rectal Lesions
DR. D. W. B. JOHNSTON, London

Fluid and Electrolyte Problems in the Postoperative Patient
DR. L. B. FRATKIN, Vancouver

Hernia as a Cause of Intestinal Obstruction
DR. CECIL CLARK, Winnipeg

Non-penetrating Abdominal Injuries
DR. E. C. JANES, Hamilton

SECTION OF PAEDIATRICS

2.00 - 5.00 p.m. Salons D and E

Chairman: DR. L. E. BEAUCHAMP, Edmonton

The Place of Early Induction of Labour in the Management of Erythroblastosis
DR. BRUCE CHOWN, Winnipeg

Colic and Feeding Problems in Infants
DR. C. E. SNELLING, Toronto

Accidents in Childhood
DR. NEIL F. DUNCAN, Edmonton

Pyelonephritis in Children—a Cause of Abdominal Pain
DR. R. C. B. CORBET, Calgary

Common Newborn Emergencies
DR. O. E. LAXDAL, Regina

The Management of Cerebral Palsy
DR. W. A. HAWKE, Toronto

SECTION OF GASTROENTEROLOGY

2.00 - 5.00 p.m. Salon A

Chairman: DR. R. D. MCKENNA, Montreal

Cholesterolosis of the Gall-Bladder
DR. R. G. FRASER, Montreal

The Œsophageal-Hiatal Complex
DR. R. C. DICKSON, Halifax

The Malabsorption Syndrome
DR. J. M. FINLAY, Toronto

Symposium—Present Trends in the Medical and Surgical Management of Peptic Ulcer
Moderator:
DR. J. WENDELL MACLEOD, Saskatoon
Participants:
DR. D. L. KIPPEN, Montreal
DR. W. C. MACKENZIE, Edmonton
DR. R. D. MCKENNA, Montreal
DR. K. R. TRUEMAN, Winnipeg

Thursday, June 20

ROUND TABLE CONFERENCES

9.00 - 10.15 a.m. Ballroom

Staphylococcal Infections
Chairman:
DR. H. ROCKE ROBERTSON, Vancouver
Participants:
DR. J. C. COLBECK, Vancouver
DR. A. M. HARDYMENT, Vancouver
DR. T. S. WILSON, Edmonton

Banquet Room

The Treatment of Hyperthyroidism Associated with Other Medical Conditions
Chairman:
DR. R. C. HARRISON, Edmonton

Salon A

Recent Advances in Cardiac Therapy
Chairman:
DR. D. S. MUNROE, Vancouver
Participants:
DR. J. B. ARMSTRONG, Toronto
DR. P. P. DAVID, Montreal
DR. JOHN KEITH, Toronto

Salons D and E

Emotional Problems in Children
Chairman:
DR. TAYLOR STATTEN, Montreal
Participant:
DR. J. MCCREARY, Vancouver

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GENERAL SESSION

10.30 a.m. - 12.15 p.m. Ballroom

Chairman: DR. M. A. R. YOUNG, Lamont

The President's Valedictory Address
DR. RENAUD LEMIEUX, Quebec

Systemic Changes in Surgical Injury and Acute Disease (The Lister Lecture)
DR. FRANCIS D. MOORE, Boston

The Integration of Preventive Medicine with Medical Practice
DR. G. D. W. CAMERON, Ottawa

SESSION A

2.30 - 5.00 p.m. Banquet Room

Chairman: DR. D. M. BELL, Edmonton

Clinical Findings of Importance in Endocrinology
DR. J. A. GILBERT, Edmonton

The Management of Chronic Hepatitis
DR. R. C. DICKSON, Halifax

The Uses and Abuses of Tranquillizing Drugs
DR. T. F. ROSE, Victoria

Recent Advances in Diabetes Mellitus
DR. R. B. KERR, Vancouver

Toxic Effects of Common Therapeutic Agents on Blood and Bone Marrow
DR. D. E. RODGER, Regina

SESSION B

2.00 - 5.00 p.m. Ballroom

Chairman: DR. T. S. WILSON, Edmonton

Some Radiological Aspects of Biliary Tract Disease
DR. C. F. HYNDMAN, Edmonton

The Management of Metastatic Breast Cancer
DR. FRANCIS D. MOORE, Boston

Rectal Bleeding in Infants and Children
DR. J. C. RATHBUN, London

Common Industrial Injuries
DR. H. H. CAMPBELL, Toronto

Cancer of the Head and Neck
DR. A. B. MCCARTEN, Edmonton

SECTION OF OBSTETRICS AND GYNÆCOLOGY

2.30 - 5.00 p.m. Salons D and E

Chairman: DR. A. H. MACLENNAN, Edmonton

Psychosomatic Aspects of Gynæcology
DR. MARION HILLIARD, Toronto

Indications for Gynæcological Surgery
DR. J. E. HARRISON, Vancouver

Rupture of the Membranes in Obstetrical Practice
DR. E. L. R. SCHRAM, London

Postmaturity
DR. RUVIN LYONS, Winnipeg

Indications for Abdominal Surgery in Pregnancy
DR. GWYN S. THOMAS, Calgary

SECTION OF RADIOLOGY

2.00 - 5.00 p.m. Salon A

Chairman: DR. H. E. DUGGAN, Edmonton

Radiographic Examination of the Colon
DR. ANDREW TURNBULL, Vancouver

Radiology and the Diagnosis of Low Back Pain
DR. A. J. M. GRIFFITHS, Edmonton

Telegnosis
DR. EARL SPENCER, Saskatoon

Radiotherapy of Lesions of the Skin
DR. C. L. ASH, Toronto

Unrecognized Skeletal Trauma in Infancy
DR. A. E. CHILDE, Winnipeg

Friday, June 21

ROUND TABLE CONFERENCES

9.00 - 10.30 a.m. Ballroom

Occlusive Vascular Disease

Chairman:
DR. J. M. LEES, Edmonton

Participants:
DR. J. C. CALLAGHAN, Edmonton
DR. J. SMITH GARDNER, Calgary
DR. R. H. WHITING, Edmonton

Banquet Room

Chemotherapy of Malignant Disease

Chairman:
DR. K. J. R. WIGHTMAN, Toronto

Participants:
DR. C. C. BURKELL, Saskatoon
DR. J. A. CASKEY, Saint John
DR. R. K. SMILEY, Ottawa
DR. O. H. WARWICK, Toronto
DR. J. W. WHITELAW, Vancouver

Salon A

Prolonged Labour

Chairman:
DR. T. R. CLARKE, Edmonton

Participants:
DR. A. B. BROWN, Saskatoon
DR. G. R. W. MYLKS, JR., Kingston
DR. G. J. STREAN, Montreal
DR. A. B. TRITES, Vancouver

Salons D and E

The Present Status of Steroids in the Treatment of Allergy

Chairman:
DR. C. H. A. WALTON, Winnipeg

Participants:
DR. C. COLLINS-WILLIAMS, Toronto
DR. J. D. L. FITZGERALD, Toronto
DR. J. LEGER, Montreal
DR. B. ROSE, Montreal

GENERAL SESSION

10.30 a.m. - 12.15 p.m. Ballroom

Chairman: DR. W. S. ANDERSON, Edmonton

Subject of Choice
DR. GORDON DOUGLAS, New York

Pædiatric Problems in India
DR. J. F. MCCREARY, Vancouver

Neuritis
DR. H. W. F. WOLTMAN, Rochester, Minn.

SESSION A

1.45 - 3.30 p.m. Banquet Room

Chairman: DR. JOHN SCOTT, Edmonton

Emotional Disorders in Later Life and Their Treatment
DR. D. G. MCKERRACHER, Saskatoon

Recent Advances in the Knowledge and Treatment of Gout
DR. E. G. KIDD, Edmonton

The Hyperventilation Syndrome
DR. J. M. KILGOUR, Winnipeg

Nosebleed
DR. N. J. BLAIR, Vancouver

SESSION B

1.45 - 3.30 p.m. Ballroom

Chairman: DR. H. H. HEPBURN, Edmonton

The Biological Hazards of Radiation
DR. R. M. TAYLOR, Toronto

Varicose Veins and the Post-Phlebitic Limb
DR. C. C. ROSS, London

Complications of Surgical Incisions
DR. J. SAMIS, Ottawa

The Acutely Ischæmic Limb
DR. E. H. SIMMONS, Toronto

SECTION OF ANÆSTHESIA

2.00 - 5.00 p.m. Salon A

Chairman: DR. E. A. GAIN, Edmonton

Ventilation During Anæsthesia
DR. W. D. KYLE, Edmonton

Indications for, and Complications of, Chlorpromazine in Anæsthesia
DR. A. B. DOBKIN, Saskatoon

Difficulties in Pædiatric Anæsthesia
DR. P. B. PERCHESON, Vancouver

Blood Pressure Variations During Anæsthesia and Their Significance
DR. E. H. DOBBS, Calgary

The Present Status of Induced Hypotension
DR. W. M. HALL, Vancouver

SECTION OF GENERAL PRACTICE

1.45 - 3.30 p.m. Salons D and E

Chairman: DR. M. SEREDA, Edmonton

Panel Discussion: The Diagnosis and Management of Congestive Heart Failure

Chairman:
DR. JOHN R. IBBERSON, Calgary

Participants:
DR. N. L. BROWN, Calgary
DR. F. CHRISTIE, Calgary
DR. E. H. DOBBS, Edmonton
DR. R. E. POW, Calgary

The Management of Gall-Bladder Disease in a Rural Hospital
DR. MURRAY STALKER, Ormstown

Indications and Technique for Local Infiltration of Painful Joints
DR. JOHN L. GULLEY, Edmonton

ARMED FORCES MEDICAL SECTION

1.45 - 3.30 p.m. Salon B

Chairman: DR. A. L. PEERS, Edmonton

Program to be announced.

GENERAL SESSION

Highlights of the 90th Annual Meeting

3.45 - 4.30 p.m. Banquet Room

Chairman: DR. M. A. R. YOUNG, Lamont

DR. H. L. RICHARD - - Surgery
DR. D. R. WILSON - - Medicine
DR. E. F. DONALD - - The Non-Scientific Program
DR. R. E. JESPERSON - - Entertainment

PHYSICIANS' ART SALON

The Physicians' Art Salon Committee cordially invites Canadian physicians and medical undergraduates to enter the 1957 Salon to be held in the Macdonald Hotel, Edmonton, Alta., from June 17-21. This will be the 13th year for this popular art and photographic feature at the annual C.M.A. Convention. It is again sponsored by Frank W. Horner Limited, Montreal, Que.

Conditions of Entry

Entries will be accepted in three sections: (1) Fine Art, (2) Monochrome Photography, (3) Colour Photography.

The Fine Art section is further subdivided into three categories—Traditional, Contemporary (Modern), and Portrait. Classification into these categories is done by the judges. There is no restriction on media; oil, tempera, gouache, water colour, charcoal, pencil, or dry brush is acceptable in each.

Each exhibitor may submit up to three entries in Fine Art and Colour Photography and four in Monochrome Photography. Exhibitors may enter up to the limit in one or more sections. There is no charge. All costs, including transportation to and from Edmonton, will be borne by Horner.

Judging and Awards

All accepted entries will be displayed in the Salon and then judged for awards by a competent jury selected by the Art Salon Committee.

To obtain entry form

Any physician or medical undergraduate may obtain an entry form and complete details from the sponsor at P.O. Box 959, Montreal, Que. A short note or postcard will bring the form along with complete instructions on how to prepare and ship your entries.

Art Salon Calendar

The Physicians' Art Salon Calendar, an attractive desk piece based on Salon exhibits, will again be prepared by Frank W. Horner Limited. The calendar reproduces selections from the award winners and is distributed to all physicians in Canada with the compliments of the Company.

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THE STORY OF THE MEDICAL FACULTY OF THE UNIVERSITY OF ALBERTA

H. E. RAWLINSON, M.D., *Edmonton*

THERE ARE FEW parallels to that remarkable tribute paid to the value of a university by the citizens of the Provinces of Alberta and Saskatchewan when, at the very beginning of their corporate existences, they immediately proceeded to establish provincial universities. Such an action on the part of pioneers, with their unavoidable preoccupation with intensely practical problems, is astounding. In 1905 when Alberta was organized into a province it had only about 300,000 inhabitants scattered over an immense territory, and the capital city of Edmonton numbered a mere 15,000. Yet the first session of the Legislature dealt with a bill to incorporate the University of Alberta, and soon after Dr. H. M. Tory was appointed as its President. For both these astute moves two generations have already risen up to call their fathers blessed.

Dr. Tory was not only a scholar and a scientist, he was a dreamer of dreams, but even more, he had the energy and ability to make his dreams come true. He saw more clearly than most of his contemporaries that state-supported universities would inevitably be called upon in the 20th century to bear an increasing burden of responsibility in the type of education demanded for the professions. In one of his addresses he said:

"The function of the university in medical education became apparent the moment it was recognized that the chemist, the physicist, and the biologist must enter the field of medical instruction along with the anatomist and physiologist, as men of science and not merely as medical men. . . . The University must also function in Medicine as the home of research . . . (and) . . . the University Hospital becomes of necessity part of the Medical School."

Such truths may seem self-evident today but they were by no means generally accepted when in 1912 Tory considered the time ripe to start medical teaching. Indeed, he faced some bitter opposition. His efforts to ensure the development of a university hospital raised a great battle and even gave tongue once more to the ancient cry of medical students practising on and at the expense of the poor. But Tory was of the same stout stuff as his Scottish forbears and he forged ahead, step by step.

He succeeded in effecting an arrangement with the city of Strathcona (South Edmonton was then a separate city) which provided eventually for the University Hospital. Having no illusions about the cost involved in setting up a proper medical school, and with no intention of being satisfied with a second-rate one at bargain prices, in some remarkable way he succeeded in persuading the Rockefeller Foundation to pledge a grant of $500,000. When this promise was honoured a few years later it came in a dramatic fashion at a time of crisis so acute that the gift is credited with saving the school from a serious reverse.

The actual beginning of medical instruction was made easier by the fact that the recently organized Provincial Laboratory of Public Health was placed under the control of the University so that a nucleus of teachers could be available. Indeed the Director of the Laboratory, Dr. D. G. Revell, became the first Professor of Anatomy. In 1913 the first three years of a five-year medical course were offered, arrangements being made with McGill and Toronto to allow the students to complete their senior years there. In a real sense these medical schools can claim to be foster parents, and Alberta was later able to discharge this obligation in kind by playing a similar role for Saskatchewan and British Columbia.

That first year 14 students registered in what would now be considered as a premedical year. The next session, joined by two other qualified students, a total of 16 entered the second year with Dr. Revell and Dr. Moshier in charge of anatomy and physiology respectively, while the faculty was strengthened by the appointment of Dr. A. C. Rankin as Professor of Bacteriology. This small but keen group of students and staff looked forward to great things as the summer sun mellowed into a prairie autumn.

Then came the blow that shattered the comfortable post-Victorian world and ushered in a half century whose stresses and strains will be specially marked by all future historians. No person, no organization could escape the impact, and the infant school felt the blow severely. Dr. Rankin barely had time to pay a fleeting visit before he was off on military service. Moshier, too, was soon away to France, never to return, being killed in action in 1918.

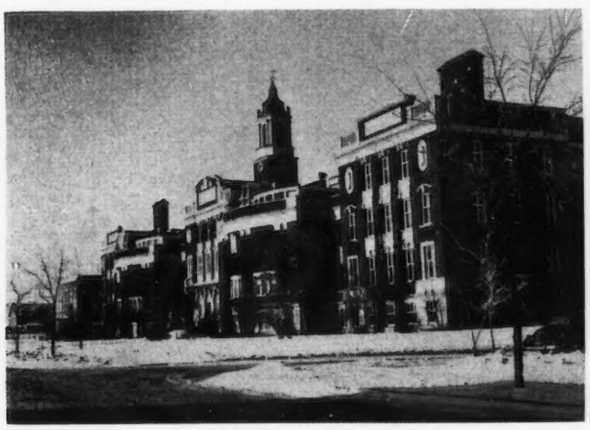
Pembine Residence, University of Alberta.

John Hillerud

Aerial view of the University of Alberta campus. The main north-south artery, 114 Street, leads directly to the unfinished Administration building. On the left-hand side of 114 Street, from bottom to top, are the Aberhart Memorial Sanatorium, the nurses' residence, the Provincial Auditorium (extreme left), and Varsity rink. Across 88 Avenue from the rink is the Varsity gym, and immediately north of it is the Students' Union building. On the right-hand side of 114 Street, from bottom to top, are the Education building, the University Hospital buildings, and the Alberta Research Council building. To the right of the Administration building, at the top of the photograph, are the Engineering building, the Medical building, and the Rutherford library. North-east of the Medical building is the Arts building, the western annex of which is Convocation Hall.

Short as was his connection with the new school he played an important part, and today the premier award of the faculty, the Moshier Medal, commemorates both his service and his sacrifice.

During the war years Doctors Revell, Collip, and Heber Jamieson succeeded in holding the tiny faculty together with barely a dozen students in each class, but with the armistice a fresh start was possible. Students entered in increasing numbers and the teaching staff was greatly expanded. The Medical Building was completed in 1921 and the long hoped for clinical instruction was now possible, Doctors Mewburn and Pope being appointed to the clinical chairs of surgery and medicine. When the first class of M.D.'s was graduated in May 1925, President Tory must have recalled with a smile that 12 years earlier he had been described as a hopeless visionary.



Medical Building, University of Alberta.

But the event furnished a still more striking contrast. When that first class graduated there was a member of the teaching staff, Dr. J. D. Harrison, who having started a practice in Edmonton well before the turn of the century, could claim to have seen on the virgin site of the future Medical Building a band of Indians carrying out a ceremonial dance. It is unlikely that any other medical school, certainly not one in Canada, has arisen on ground so recently vacated by its aboriginal inhabitants.

In the 44 years of its existence the Medical Faculty of the University of Alberta has trained some 1500 medical students and expanded in a fashion that perhaps not even Dr. Tory would have foreseen. The unusual circumstances of the period of its growth have called for exceptional devotion on the part of its founders, but in return we salute them fittingly with the words of Pericles: "Their monument abideth everywhere, wrought in the stuff of other men's lives."

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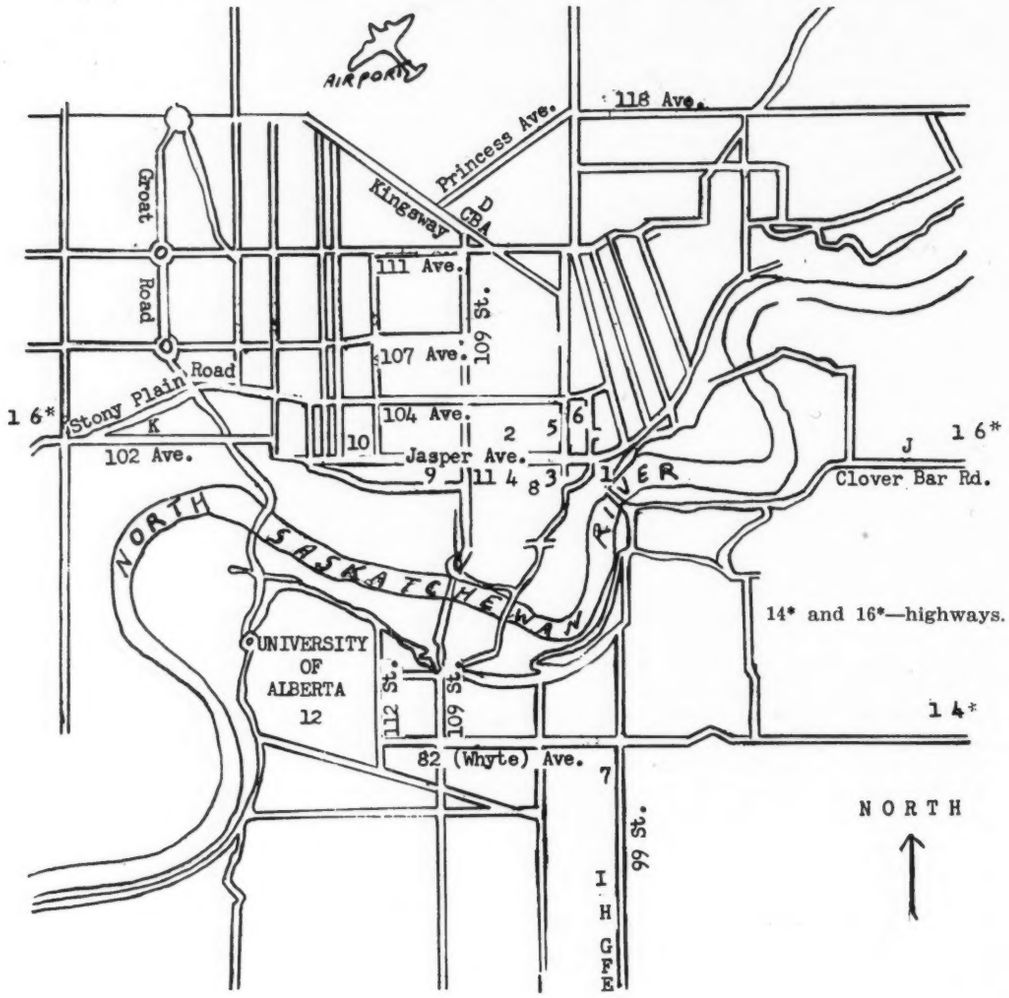
HOTELS AND MOTELS IN EDMONTON



HOTELS	1st-class bedrooms with shower or bath	Single	Double
1 Macdonald	225	$7.00 to $8.50	$11.00 to $12.50
2 Cecil	29	$4.00	$ 6.00 to $ 6.50
3 Carona	30	$5.00	$ 6.50 to $ 8.50
4 King Edward	20	$5.00 to $5.50	$ 7.00 to $ 9.00
5 Mayfair	50		$ 8.50
6 Park	12	$5.50	$ 8.00 to $ 9.50
7 Royal George	25		$ 7.00 to $ 9.50
8 Selkirk	35	$5.50	$ 7.50
9 Gateway	20	$3.50	$ 5.00
10 Savoy Plaza	Apartment Hotels—8		$ 7.00 to $10.00
11 Shamrock	Suites Available—8		$ 7.00 to $10.00
12 University of Alberta Residences	400 (No private bathrooms)	Single only $3.50 with breakfast	

Bus service to Macdonald Hotel is available from other hotels and University.

MOTELS (AAA Rated)

A Pan American	E Van Winkle	I Edmonton Auto Court
B North Star	F El Paso	J Patricia
C Imperial Bungalows	G South Bend	K Linda
D Alaskan	H Capital	

Edmonton has numerous excellent motels. Ninety units are in a central location one mile from the centre of the city; the remainder on main highways leading into the city (see map).

N.B.: The housing accommodation in Edmonton is not unlimited, and the Housing Committee, therefore, reserves the right to assign the best available accommodation.

HOUSING APPLICATION FORM

90th Annual Meeting, C.M.A. Edmonton, June 17 - 21, 1957

Dr. P. B. Rose,
Chairman, Committee on Housing, C.M.A.,
501 Alexandra Block,
Edmonton, Alberta.

Please reserve the following accommodation:

..... Double room (bath or shower) twin beds..... double bed.....

..... Room for ..... person(s) (bath or shower)

..... Motel Unit for ..... persons (bath or shower)

In view of the large attendance expected, the hotels have few, if any, single rooms available. It might be to your advantage to share a room with another member. Please mention below the name of the person with whom you would like to share your accommodation; otherwise assignment will be made by the Housing Committee.

Names of persons who will occupy the accommodation requested above:

NAMES (Dr. and Mrs.) ....

ADDRESSES ....

I (we) will arrive in Edmonton on June ..... at ..... a.m. p.m.

Travelling by: Automobile..... Train..... Air..... Bus.....

My choice of accommodation is:

First choice ..... Hotel or Motel

Second choice ..... Hotel or Motel

Third choice ..... Hotel or Motel

NAME .....

ADDRESS .....

.....

TELEPHONE NO. .....

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REVIEW ARTICLE

THE SUBNORMAL CHILD

P. G. THOMSON, M.B.,* *Toronto*

THIS PAPER IS AN attempt to review and clarify the present status of mental deficiency from the medical, social and educational viewpoints. The industrialization of society, growth of cities and compulsory education have radically altered the status of this group in society. We are steadily becoming more aware of the need for provision of those conditions which would allow subnormal children to make full use of their potentialities. The problem can be met only by preventive and remedial measures on a community scale. An expert committee on children with physical handicaps submitted these two principles which can be applied to the subnormal child:

1. Every child has the right to expect the greatest possible protection against the occurrence of preventable handicaps before, during and after birth.

2. Every child has the right to develop his potentialities to the maximum. He should be fully able to satisfy the needs of his own personality and become an independent and useful member of society.

DEFINITION

A World Health Organization committee[7] used the term "mental subnormality" to describe an incomplete or insufficient general development of the mental capacities.

Alternative terms to subnormality are mental deficiency, mental retardation, feeblemindedness (a term used in Britain only to denote the mild variety, on this continent called moronity), intellectual inadequacy and amentia. The term "retardation" is properly used to refer to those whose educational and social performance is low in relation to their intellectual capacity. However, tradition dies hard and the term "retardation" continues to be used on this continent.

Traditionally three grades of subnormality are described: idiocy, imbecility and moronity. The International Statistical Classification of Disease gives the following figures:

Morons ..	I.Q. 50-70	Mental age 7-10
Imbeciles .	I.Q. 20-50	Mental age 3-7
Idiots ...	I.Q. 0-20	Mental age 0-3

CLASSIFICATION

In the literature there are a myriad of classifications. A lucid and meaningful classification is that of Bakwin and Bakwin.[1] There are two major groups:

(A) *The Simple or Physiological Type*

This is the group in which subnormality is physiological and quantitative, i.e. subnormal in quantitative relation to the normal. This group is genetically determined as a rule, but not always. Intelligence is directly related to that of the parents, who are usually in the lower socio-economic strata. The I.Q. is 50-70, i.e. in the moron group.

(B) *The Pathological Type* (i.e. associated with disease)

Those of this group are of lower I.Q., have an unusual appearance, and make up a large proportion of those in institutions. They may be subdivided into:

(i) *Those with Germ Plasm Defects*, e.g. disorders of either lipoid metabolism (amaurotic idiocy, Tay-Sachs disease), amino acid metabolism (phenylpyruvic oligophrenia), or carbohydrate metabolism (e.g. von Gierke's disease or glycogenosis). Other examples are the congenital ectodermoses, such as tuberous sclerosis.

(ii) *Those with defects due to environmental factors:* (a) prenatal factors; (b) natal and postnatal factors.

(a) *The prenatal group would include:* Maternal rubella and toxoplasmosis; irradiation of mother during pregnancy; anoxic disease of mother during pregnancy; cretinism.

(b) *The natal and postnatal group would include:* Isoimmunization (Rh and ABO); brain injury at or after birth; anoxic damage to brain after birth; infections, e.g. encephalitis; hypoglycæmia, e.g. insulin coma.

THE BRAIN INJURED CHILD

This includes those children whose brains have been traumatized at or after birth, and those who have had an attack of encephalitis or meningitis.[6] There may be all degrees of disturbance from behaviour disorder without subnormality to complete idiocy. The degree of subnormality produced does seem to have some relation to age; in particular, encephalitis during the first two years of life produces much more severe subnormality than later. The clinical picture in the brain injured child includes distractibility, perseveration and a certain lack of emotional stability and control. Psychological tests reveal that there is a fluctuation of attention between figure and background. The uncertainty as to what is figure and what is background leads to reading and writing difficulties (as well as other difficulties), the cause of which is often unrecognized. This group can easily be misdiagnosed as cases of simple behaviour disorder due to environmental cause.

DIFFERENTIAL DIAGNOSIS

1. *Delay in Motor and Speech Development*

As a rule this is a good indication of subnormality. However, in a child with brain damage, motor development may be postponed consider-

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This paper is based on a seminar given at the Department of Psychiatry, University of Toronto.

ably and yet the mental capacity may remain within the average range. A delay in speech often up to the age of three is quite common and is usually associated with changes in lateral dominance. The question of confused dominance is a complex one and outside the scope of this paper. However, if it occurs in a subnormal child it will still further reduce his capacities, and in the normal child will give rise to reading and writing difficulties. A factor of a different nature which may produce motor and speech retardation is parental overprotection. Both forms of retardation are said to be common in the unstimulating environment of an institution.

2. *Defects in Vision.*

Defects in vision may produce lack of fusion of images; one image may be above or to one side of another, and sometimes images are of different sizes.

3. *Defects in Hearing.*

Finer defects in hearing, such as those limited to a small part of the hearing spectrum (e.g., high tone deafness), may be missed in the usual auditory examination. The child with an auditory impairment which interferes with language development may speak in a garbled manner, is inattentive and bored at school and may develop emotional disturbances. Hearing is closely related to the development of language, on which depends in turn much of behaviour.

4. *Post-Natal Brain Damage*

Judgment as to intellectual function should be postponed because as time goes on improvement may occur, as intact areas of brain take on functions previously controlled by damaged areas. Children tolerate destruction of larger masses of brain tissue than adults, and localization of function has not progressed so much in children.

5. *Unstimulating Environment*

An example would be a home with severe rejection, or an institution. This has been called by Tredgold isolation amentia. A famous example is the wolf-children. Such children when captured are unsocialized, and have some traits in common with animals and more in common with imbeciles. It should be added that Dennis concludes, however, that most of these were originally subnormal.

6. *Epilepsy*

In about 25% of mentally slow epileptics there is a condition termed by Lennox pseudodeterioration. He feels that isolation from normal and stimulating contacts, shame, fear and discouragement may lead to a stagnation of behaviour that resembles deterioration. Some of these cases may be due to overdosage of sedative drugs.

7. *Improper Intelligence Testing*

This is said to occur occasionally. Perhaps more often it is due to a child's being uncooperative, frightened or fatigued.

PREVALENCE OF SUBNORMALITY

Noyes's statistics indicate that 1% of school children are in special schools and 8% require special provision within ordinary schools. It is generally agreed that the mild variety greatly exceed the severe. The Noyes statistics suggest: 75% morons; 20% imbeciles; 5% idiots.

Whether the prevalence is rising or falling is a matter for debate. Advances in clinical medicine have reduced the incidence of some types, but such advances also increase the rates for subnormality by adding those who would formerly have died. It is sometimes feared that civilization, with its preservation of the unfit, is causing a general lowering of the intelligence. Penrose disagrees, concluding that in general the subnormal do not propagate nearly to the extent often believed.

RESEARCH

Relatively little research is being carried on despite the prevalence and social cost of subnormality. The little research being done shows that some diseases producing subnormality can be controlled, and it is becoming better known that the mildly subnormal can, by educational and social help, improve their mental functioning.

The following are some examples of research undertaken in recent years.

Mongolism

Ten per cent of all defectives in institutions are mongoloids. It has been suggested that hormonal lack in the mother produces defective nutrition of the embryo. Benda,[2] after anatomical, biological and x-ray studies of skull and skeleton, concludes there is a disorder of central growth regulation, i.e. deficiency of a pituitary-like factor. He calls it acromicria (opposite of acromegaly). This could be due to the nutritional defect already mentioned.

Macklin disagrees with Benda; she believes that the cause lies in a germ plasm defect. Among 11 pairs of monozygotic twins she found 10 pairs of mongols; among 39 pairs of dizygotics she found both affected in only three pairs. She believes that the germ plasm defect may in some way be associated with the greater age of the mother in mongols, and that mongolism cannot be determined by the prenatal environment.

Metabolic Disorders

George Jervis[4] believes all the metabolic disorders to be illustrations of Mendelian inheritance. He describes phenylpyruvic oligophrenia (Folling's disease), a disorder of amino-acid metabolism. Clinically, there is severe inborn mental defect, sometimes with convulsions. Pathologically, there is retardation of myelination. Jervis[6] believes the metabolic error to be inability to hydroxylate phenylalanine to tyro-

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sine. This results in accumulation of phenylalanine in the blood and excretion in the urine of phenylpyruvic acid. Another disorder of amino-acid metabolism is Wilson's hepatolenticular degeneration. Jervis[4] states, of the metabolic disorders, "it is a singular fact that, in spite of the diversity of biochemical mechanisms involved, the genetic behaviour is the same in all". It is tempting to attribute the common genetic behaviour to the genetically determined lack of a specific normal enzyme responsible for the metabolic step. In each disease, a gene change determines the absence of an enzyme, and, as a consequence, there is failure in the corresponding step in the enzymatic chain of reactions. This indicates a one-to-one quantitative relationship between the units of inheritance, the genes, and the units of biochemical activity, the enzymes.

Examples have briefly been described of medical and biochemical research in mental deficiency. It should be emphasized, however, that research in mental deficiency includes investigation into social and educational aspects of etiology, methods of social training, studies of prevalence, and, perhaps most important, research into the kind of services needed for the community.

WHAT IS TO BE DONE ONCE SUBNORMALITY IS DIAGNOSED?

At this point an assessment is needed of the clinical picture, physical abnormalities and emotional disturbance. For a complete assessment a team of specialists (including physician, biochemist, psychologist and social worker) would be required. All of these services are seldom available. When they are available they should be made use of, for it is not in the interests of society to leave the parents to struggle with the difficulties. Such a team of specialists is most likely to be available at a children's hospital or at a child guidance clinic.

The question of *advice to parents* is an important one. When a physician is approached regarding a subnormal child he often fails to realize that the parents are bringing all their feelings of frustration, hostility, shame and guilt.[3] They require help with these feelings. After all investigations are done (e.g., to exclude brain damage and other physical abnormalities), the parents should be helped to express their feelings. Guilt feelings are common. These may have arisen because the child was unwanted, or perhaps abortion had been attempted. The occurrence of subnormality may then be taken as a punishment for sins. The parents may blame each other.

CASE 1.—R.F., an 11-year-old boy with I.Q. 59. This boy was the focus of irrational hostility directed at him by the mother. He, in turn, was reacting by an aggressive behaviour disorder. Under the influence of this disturbing environment his I.Q. showed a decline from a higher figure.

The parents are often sensitive to the opinion of their neighbourhood, feeling the family may be reduced socially. Many parents overprotect the backward child at the expense of their other children. Some decline to believe their child is subnormal and demand a higher performance than the child can attain.

CASE 2.—R.B., a seven-year-old girl, the only child of intelligent parents; the father was an engineer, the mother a university graduate with the degree of M.A. On testing, the I.Q. was 70. The parents were unable to accept this; their own child simply had to be a success. The demands they were making produced a markedly disturbed child.

The parents need to understand that their feelings are acceptable to the physician. From this point they can begin to work towards the stage where they can accept advice. It is important to recognize that this stage may not be reached without such an expression of feelings and reactions on the part of the parents, and acceptance of these by the physician or social worker. The physician should emphasize the positive side, e.g., that the child is capable of some attainment; that he has the feelings and sensitivities of the average person and should be helped to find his place in society.

The next question is one of disposal; should the child remain at home or go to an institution? The decision should be based on consideration of: (1) the condition of the child; (2) the mental health of the family, especially the mother's competence; (3) living and financial circumstances of the family.

In general, home care is to be recommended. Apart from all other advantages, home care is cheaper for the community even when financial assistance is given. It must be remembered that parents have made a heavy emotional investment in their child. Sending the child to an institution makes them feel they have rejected the child. And, of course, no institution can provide the social emotional interaction between parents and child. Their emotional interaction is especially important in the early years. As the child grows older, he may become in a position to benefit from the training an institution can offer.

PROVISION FOR SUBNORMAL CHILDREN LIVING AT HOME

Educational provision strives to avoid rigid classification and to allow for change in the course of the child's development. Special classes with modified curricula and a greater degree of personal attention are needed for subnormal children to make the most of their limited capacities. In 1955, there were 38 such classes in the city of Toronto for children of I.Q. 50-75. There were 20 pupils per class rather than the 35-45 in ordinary classes. Heavy demands are made on

the teachers of such children and they require a higher degree of personal maturity.

In educational practice, a clear distinction is usually made between children with mild subnormality who are educable in special schools and those who cannot satisfactorily acquire the basic skills, i.e. with an I.Q. usually below 50. The term "ineducable" has been used for the latter group but the term "trainable" is probably better. With this more severely handicapped group of children there is less emphasis on long-term educational goals and less emphasis on training for future independence.

VOCATIONAL GUIDANCE AND TRAINING

Vocational guidance should be an outgrowth of sound educational guidance long before the child leaves school. A suitable transition stage between school and employment would be "training workshops". Vocational training of this kind is as a rule general rather than for specific jobs, thus enabling the adolescent to take one of a number of jobs. In the city of Toronto there are three Senior Auxiliary Schools with a total of about 1200 pupils. Here, children over 12 receive occupational training, in addition to basic school subjects.

SOCIAL PROBLEMS OF SUBNORMAL ADOLESCENTS

It is of interest that mental deficiency used to be thought at the root of much crime and poverty. English figures state that 3.5% of criminals are subnormal. Fairbank in 1916 reported on 166 subnormal children in the I.Q. range 61-72. At that time such children were prophesied likely to "recruit the ranks of vagrancy, prostitution, alcoholism and delinquency, reproducing without care and handing over to others responsibility for their offspring." In 1931, 122 of these 166 persons were re-examined. Four had had illegitimate children, eight were alcoholics, five were delinquents, 95 supported families and 36 owned their own homes. Their employment was mostly unskilled, but ten were skilled labourers and six clerks. The I.Q. had remained practically unchanged in 50 who were tested. It seems that we are justified in a more optimistic attitude towards the subnormal than was held 40 years ago.

INSTITUTIONAL PROVISION

Institutions strive to offer conditions allowing the child the fullest possible physical, emotional and intellectual development. There is a trend towards division into smaller units in order to allow children to have satisfactory parental substitutes.

PARENT AND PUBLIC EDUCATION

The problem of feelings of shame and guilt on the part of parents was mentioned. Such feelings are in large part socially determined. They can be helped by discussion with other parents of subnormal children. Parents' associations can be most valuable, e.g., the Toronto Association for Retarded Children. A valuable booklet called "The Backward Child" is published by the Mental Health Division of the Department of National Health and Welfare.

The general public require to know more about this problem. Parents' associations help in that the parents become interested in the needs of the subnormal group as a whole. Voluntary associations, trade unions and employers can be encouraged to become interested. Church organizations can do much to break down prejudices in the community. Popular education can be given through radio and television programs and articles in the press (e.g. *Life* magazine, October 1954, *Ladies' Home Journal*, June 1956).

TREATMENT

Alternative methods for the high-grade defective are: Socialization, Segregation or Sterilization.

It is generally felt that sterilization is no panacea. For one thing, it is by no means true that the subnormal reproduce themselves wholesale, as Penrose points out. For another, many high-grade defectives are dependable labourers, farm hands, waitresses, etc. Kanner[5] states, "It is the ill-trained and unstable feebleminded that are responsible for social mores." He believes that delinquency, prostitution, etc., are more common in the borderline and dull normal group, who would be excluded from sterilization. He continues, "The expenditure invested in feeblemindedness is negligible compared with the social ills emanating from dishonest diplomats, war agitators and fraudulent financiers, none of whom can be suspected of a low intelligence quotient." Yannet[8] believes that sterilization has a use in female morons of the trainable category. He favours sterilization, not for eugenic reasons, but because this person will make a poor parent and the travail of parenthood will often be enough to necessitate her return to an institution.

No organic therapeutic approach to subnormality has proven itself of more than limited use. Glutamic acid, vitamin B_{12} and surgical revascularization of the brain are measures which have been attempted with little success.

SUMMARY

Developments in society call for a new approach to mental deficiency. The problem can only be met by preventive and remedial measures by the community.

Some of the problems of differential diagnosis are described.

Examples of research are given and it is emphasized that research into the social and educational aspects of mental deficiency is needed.

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Methods of management of mental deficiency by parents, physician, school and community are outlined.

The general attitude to mental deficiency has been overpessimistic and much can be done at all levels to ameliorate the problem.

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PUBLIC RELATIONS FORUM

Conducted by L. W. HOLMES,
Assistant Secretary, C.M.A.

VOCATIONAL GUIDANCE

HOW DO I BECOME A DOCTOR? What is the course of study? How much will it cost me? What is the difference between the general practitioner and the specialist?

Each year high-school students across Canada, interested in medicine as a career, ask these questions and hundreds more.

Who answers them? Perhaps a teacher, a parent, a minister. Often it will be a School Guidance Officer. All too frequently the guidance given is inadequate, particularly if the student is more than just casually interested in becoming a doctor.

The most authoritative source of guidance information in this instance is, of course, the medical profession. Obviously, doctors can draw the most faithful picture of the satisfactions; the heartbreaks; the advantages and disadvantages; the pros and cons of specialism; the academic preparation; the income range of a medical career. However, only in isolated cases is the medical profession meeting this need in the community.

An attempt to fill this vacuum is being planned by the Ontario Medical Association. At the moment consideration is being given to a pilot project in Toronto which, if successful, will be streamlined and refined and suggested to other areas of Ontario.

As conceived at present, the program calls for an evening meeting to which all secondary school students "definitely interested in following a career in medicine" will be invited.

The program for the meeting will open with a panel discussion by three or four doctors during which students will be told about items of study, cost, general practice and specialism, medical ethics, etc. Then will follow a question period.

Following the formal part of the meeting, it is suggested that doctors and students mingle so that questions which students may have been unwilling to put from the floor can be answered on an individual basis.

It has also been suggested that there be a follow-up program. For this part of the project a roster of doctors would be set up who would be willing to give 15 or 20 minutes of their time now and then for interviews with individual students on an appointment basis. To keep such interviews to a minimum, it is expected that students would make appointments through the School Guidance Officer who would determine if they were warranted.

Recruitment of students for medicine, a justifiable purpose of such a program, is perhaps a secondary objective. By undertaking a program of this type, the medical profession is accepting a social responsibility, providing a needed public service, and guiding young minds to make decisions of unique importance.

Like recruitment, the public relations gain—undoubtedly of considerable magnitude—is only secondary.

* * *

A PHYSICIAN'S CREED

[The following is the creed of Harry F. Dietrich, an American doctor who expounded his philosophy over a Columbia Broadcasting System program called "This I Believe".]

My father and his father gave me some genes dipped in the art and science of medicine; the cells my mother gave me were tinted with the skills and compassion of nursing; my wife was a most wondrous nurse. My father gave me the example of a life dedicated to medicine and intellectual honesty. My teachers—how thrilling now are the names I once so casually mouthed—Bobby Green, Folin, Cannon, Zinsser, Walbach, Rosenau, Christian, Blackfan, Cushing, Brenneman and Lyttle—gave me of their knowledge, wisdom and philosophy. They and many others gave, that I might know. Before and after them, hundreds of other doctors gave me the tools with which to study disease and health. The stethoscope, ophthalmoscope, electrocardiograph and microscope, x-ray and electroencephalogram, and even the Geiger counter, were given me for my considered use. Always there were teachers to give me knowledge, because others before them gave, to find the truth about man

and disease. And in our time, men and women of medicine have given me unbelievably effective means of preventing and curing most of our most awful diseases. Many of the fearsome names and fevers will soon be found only in the textbooks on medical history. Dedicated workers have given me techniques of anæsthesia, surgery and postoperative care that insure safe operations on young and old. If the most imaginative doctor in 1900 had had Aladdin's lamp, he could not have in a year thought of enough wishes to accomplish the wonders that medicine and its allied sciences have now given me. And so I find as I encounter human ills that I do so not empty-handed, for by my predecessors and by my contemporaries I have been given miracles of medical achievement. They have put into my head sound knowledge of body function. My hands can scarcely hold the tools of diagnosis and treatment that they have given me.

I am an earthly man who has been given almost godly powers. So many have given me so much—what can I give? How best shall I use those powers? To cure the sick? . . . This I will most surely do. To learn?—If find I can a fact unknown, it must be proved and then passed on. And so to teach as others have taught me. Yet I, who have been given so much, should be able to give still more.

Man needs his physician not just to rid his body of unwanted bacteria, replenish his vitamins, cunningly carve his disordered tissues and effectively immunize him against disease, but to help him find peace of mind. Perturbed humans, confused by the medical dogma of previous generations, exposed to the provocative advertising of a thousand nostrums, plagued with the sensibly silly dicta of false health cults, appalled by the appeals of money-seeking foundations, and frightened by pseudo-scientific articles in the lay press, desperately need and deserve good physicians. Perplexed man needs a physician who, grateful for the medical miracles that have been given him, uses them effectively and humbly. When by work and demeanour he allays unnecessary fear, by logic dispels erroneous beliefs, and by every act, word and bit of human intercourse reinforces man's belief in man, the physician's gift is peace of mind; then he is a good modern doctor —This I Believe.

* * *

PR TIP

Parking.—The patient who drives around the block for 20 minutes before she can find a parking place near the doctor's office—or who receives a parking ticket because the doctor was late in seeing her—often complains loudly about doctors. Consequently, many physicians are making special parking arrangements for the convenience of patients. It makes good public relations sense.

MEDICAL MEETINGS

MONTREAL LECTURE ON STORAGE AND FERRITIN

Professor Ludwig Heilmeyer of Freiburg, Germany, (returning from the recent conference on iron metabolism in San Francisco) presented a stimulating lecture at McGill on February 8. He and his colleagues have been able to demonstrate crystalline ferritin, and to characterize it chemically, distinguishing ferritin from hæmosiderin. The ratio Fe/N is constant in ferritin, the Fe atoms being bound to –CONH. The Fe/N ratio in hæmosiderin is variable and always greater than in ferritin. Hæmosiderin is amorphous, a group of substances, probably a complex that forms when there is an excess of iron.

A technique for separating ferritin from hæmosiderin by electrophoresis on paper strips was shown. Ferritin moves more rapidly towards the anode.

Professor Heilmeyer proceeded to show evidence that the mucosal block theory of the regulation of iron absorption is no longer tenable. This work was done in experimental animals, using rats and guinea pigs. The animals were fed iron compounds and then sacrificed at intervals of 4, 8, 12 and 24 hours, and ferritin content was measured in gastric mucosa, duodenal mucosa, liver and spleen. The ferritin content of the mucosa of the stomach increased slightly and then fell off as the stomach emptied. The duodenal mucosa ferritin showed a much greater rise which did not diminish even though the ferritin stores in liver and spleen were at a high level.

No explanation of the control of iron absorption is offered, but Heilmeyer believes that it may be a matter of central nervous regulation. He and his associates have been able to demonstrate a cyclical diurnal variation in serum iron in humans; this cycle is inverted in persons who work through the night and sleep in the day.

Other experiments were described in which the storage of iron in the fetus was studied. Radioactive iron was injected intravenously into pregnant animals and these were sacrificed at 40 minutes and at 24 hours. Parallel paper strip electrophoresis and autoradiographs were used to show that the fetal liver contains only hæmosiderin tagged with radioiron at 40 minutes, but at 24 hours there is abundant radioiron ferritin. If there is sudden loading with iron, first hæmosiderin is formed and later ferritin. In the discussion that followed, the pertinent question was raised of the applicability of some of these experiments to the human. LORNE SHAPIRO

INDUSTRIAL HEALTH CONFERENCE

The Twelfth U.S. National Industrial Health Conference will be held at Kiel Auditorium, St. Louis, Missouri, April 20-26, 1957. This Conference annually brings together the five organizations whose members are responsible for maintaining the health of the nation's industrial workers: the Industrial Medical Association; the American Industrial Hygiene Association; the American Association of Industrial Nurses; the American Conference of Governmental Industrial Hygienists; and the American Association of Industrial Dentists.

The program will include material on: occupational diseases and injuries; non-occupational conditions in employment; mental health; psychological testing; rehabilitation and physical therapy; geriatrics and retirement; problem drinking; noise; air pollution; toxicology; radiation; administrative medicine; cancer as an industrial health problem; the relation of the general practitioner to industrial work; dental health; the medical witness in the courtroom; death patterns in industry;

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respiratory protection; and engineering and analytical chemistry as related to industrial health. More than 100 technical exhibits will be displayed throughout the Conference.

The formal sessions—more than 40 in number—include symposiums and panel discussions, special meetings of the various groups; conferences of special committees; and meetings of company physicians—steel, oil, electric, auto—starting with the all-day conference of General Motors physicians on Monday, April 22.

A feature of the formal opening session will be the C. O. Sappington Memorial Lecture, by Frank Curtis, Vice-President, Monsanto Chemical Company, and Past-President, American Institute of Chemical Engineers. The Donald E. Cummings Memorial Lecture will be given by H. H. Schrenk, Ph.D., Industrial Hygiene Foundation. The complete program may be obtained by writing E. C. Holmblad, M.D., Managing Director, Industrial Medical Association, 28 East Jackson Boulevard, Chicago 4, Ill.

CANADIAN UROLOGICAL ASSOCIATION

The 13th Annual Meeting of the Canadian Urological Association will be held in the Queen's Hotel, Montreal, May 13-15, 1957. At this meeting the Association will be host to the British Association of Urological Surgeons. Such an event is unique in the annals of the Canadian Association and will give the members the opportunity to discuss matters of mutual interest with their British guests. A good representation of British urologists is expected. The above dates were chosen in order to enable the visitors to attend the annual meeting of the American Urological Association in Pittsburgh, Pa., from May 6 to 9 and then travel comfortably to Montreal. The scientific sessions will be held in the Montreal General Hospital.

The Queen's Hotel has recently renovated a block of 100 rooms which will be set aside for the Canadian Urological Association. Reservation requests should be addressed to the Queen's Hotel, 700 Windsor St., Montreal, Quebec.

CANADIAN ASSOCIATION OF ANATOMISTS

The Council of the Canadian Association of Anatomists held a meeting on Saturday, February 9, 1957, at Queen's University, Kingston. Present were: Prof. H. A. Skinner (President), University of Western Ontario; Prof. I. M. Thompson (1st Vice-President), University of Manitoba; Dr. L. Poirier (2nd Vice-President), University of Montreal; Prof. J. Auer (Secretary), University of Ottawa; Prof. D. C. Matheson (Treasurer), Queen's University; Prof. P. Jobin, Laval University; Dr. S. Bensley, University of Toronto; Dr. Y. Clermont, McGill University.

Particular attention was given to a proposed Canadian Alliance of Biological Societies, and Council approved a provisional constitution for this Alliance as a working basis for further discussion with the Canadian Physiological Society and the Pharmacological Society of Canada. It was further decided that a newsletter to all members will be sent in early summer. Several committees were established of which a Publication Committee and a Program Committee for the annual meeting in Ottawa on October 10 and 11 deserve mention. The difficulties of staff recruitment and their possible causes were discussed at length, and it was decided to pursue this matter further by correspondence with all anatomy departments in Canada before acting officially.

The next meeting of Council was set for April 17 in Baltimore, during the Congress of the American Association of Anatomists.

PUBLIC HEALTH

OTTAWA NEWSLETTER

(From the Department of National Health and Welfare)

FATS AND ATHEROSCLEROSIS

The metabolism of lipids is still far from clear but their possible relationship to cardiovascular-renal disease has stimulated much work in recent years. Nevertheless there is still no test that will satisfactorily predict in an individual the serious consequences of atherosclerosis such as coronary artery disease (this *Journal*, Feb. 1, 1957, p. 223). There is, however, fairly general agreement among scientists in several countries that some kind of relationship does exist between lipids and atherosclerosis.

The following points list some of the evidence and some of the directions that research is taking. The conclusion may be reached that enough evidence is available to justify scrutiny of the high level of total fat in our current Canadian diet. But there is no reason to neglect other aspects of the problem such as heredity, kidney function and physical activity, or to promote unusual dietary manipulations without full knowledge of what they may do.

1. Many people who suffer coronary attacks or other evidence of arteriosclerosis or atherosclerosis have a high level of blood cholesterol. For this reason foods containing cholesterol used to be forbidden such patients, but it is now clear that the body will make whatever cholesterol the conditions require.

2. In patients after coronary attacks a diet low or moderate in fat has lessened the recurrence rate.

3. Post-prandial lipæmia is familiar to all doctors, and suggests that the moderate intake of fat now recommended for all people as well as patients after coronary attacks should have the fat distributed among all meals to avoid excessive levels. The clearing of this lipæmia may be important in coronary disease. The oversimplified hypothesis is that the body makes enough cholesterol to match the fat absorption in an effort to keep fat and its components in suitable solution or suspension. After a high fat meal there may be extra cholesterol left over, which can be deposited in arterial walls with the familiar results.

4. These clinical observations are supported by epidemiological studies. In general, people eating a lot of fat have high levels of serum cholesterol. If a group of people derives 20% of its calories from fat, its cholesterol level may be one-half the average of a group getting 40% of its calories from fat. The population of the United States and Canada derive nearly 40% of their calories from fat and have a high rate of cardiovascular-renal disease, while several other populations have been reported to have low fat diets and far fewer deaths from such diseases. These differences cannot be explained on the basis of race or climate but do seem to correlate with obesity, lack of exercise and differences in diet, especially fat content. It is generally possible to raise or lower the average cholesterol levels of a group by raising or lowering the fat content of their diet.

5. The importance of fats in degenerative diseases rests on evidence to which there are some exceptions, or observations not yet easily explained. Some people who have coronary attacks do not have high cholesterol values in the blood. In this country atherosclerosis is found in practically all adults suitably examined, but only a few adults have really high cholesterol values. Clearly other factors are involved in the development of atherosclerosis and its serious manifestations. Such other factors probably include recent findings on the kidney, as well as hormones, changes in activity, obesity and tensions.

6. Fats are not equal in their effects on cholesterol levels, but the application of recent observations in this direction is not yet clear. Two lines of research have lined up animal against vegetable fats, and the unsaturated fatty acids against the saturated fatty acids. The latter evidence involves the common process of hydrogenation, while the former attacks the most cherished foods in our diet: meat, milk and eggs.

7. Some oils and soft fats lower cholesterol levels at least for a short time and on special diets, and these levels may then be raised, at least for a short time, by feeding certain animal fats. On an ordinary mixed diet these effects are not always observed, nor is the change in level as big as ordinarily associated with coronary disease.

8. The process of hydrogenation which is applied to a wide variety of foods at the present time (e.g. margarine, shortening, peanut butter) chemically alters a proportion of the unsaturated fatty acids so that the effect they sometimes have of lowering cholesterol levels is no longer found. But careful recalculation of the unsaturated fatty acids at present in the food supplies of the United States shows about the same amount now as 40 or 50 years ago. Much further work seems to be needed before these details can be properly fitted together.

9. What is important and can be applied right now is a consideration of the total fat in the diet and methods of preventing its continued rise, or even of turning it back to lower figures. There is good evidence that some fat is needed in our diet, but the recommended level is 25% of calories from fat rather than the 38% which is the present Canadian average.

L. Bradley Pett, Ph.D., M.D.

ABSTRACTS *from current literature*

MEDICINE

Functional State of Central Nervous System in Nonspecific Infectious Polyarthritis.

M. G. Astapenko: *Klinitscheskaya Meditsina*, 34, No. 9, 34, 1956.

Symptoms of infectious polyarthritis point to an involvement of the central and autonomic nervous systems. The present paper is the first on a large topic being investigated in the author's clinic; it represents an attempt at clarification of the functional state of the central nervous system in patients suffering from non-specific infectious polyarthritis. The functional state of the central nervous system was evaluated on the basis of the patients' detailed histories, systematic observations of behaviour during hospitalization, and investigations of the conditioned reflex activity by the method of Ivanov-Smolenski. The author makes the following observations on 50 patients with infectious polyarthritis:

The premorbid state of central nervous function has a significant influence upon the course of disease: in patients with strong and balanced central nervous function the disease most frequently assumes an acute form with predominance of exudative process, with acute recurrences and with slow proliferative process in the joints, pointing to high immunobiological qualities; in patients with weaker central nervous function a sluggish course of the disease is commonest and a faster proliferation is observed.

During the disease the functional state of the central nervous system undergoes a change in the form of a repression. The change is most acute at the beginning of the disease. The degree of repression, in its turn, influences the course of disease: the latter is sluggish in cases when the repression is acute; in patients with insignificant repression of central nervous function a favourable course of the disease along with better therapeutic effects is observed.

Clinical improvement after treatment is associated with an improvement of the functional state of the central nervous system. However, as there is no complete liquidation of the pathological process there is no full rehabilitation of the functional qualities of the central nervous system to the premorbid state.

V. R. Jablokow

Infectious Mononucleosis with Jaundice and Abdominal Pain as Presenting Complaints.

D. C. Wormer, W. J. Martin and E. E. Wollaeger: *Ann. Int. Med.*, 45: 718, 1956.

A case of infectious mononucleosis is presented, in which jaundice and abdominal pain were the presenting symptoms at a time when pharyngitis and enlargement of lymph nodes had not yet appeared. This combination of symptoms, together with the finding of a markedly elevated value for serum alkaline phosphatase, suggested the diagnosis of disease of the extrahepatic biliary tract. On the other hand, the prodromal symptoms of the patient's illness and the positive results for cephalin-cholesterol flocculation and thymol turbidity tests suggested infectious hepatitis. It was only by determination of the heterophil antibody titre that the true nature of the patient's illness became apparent. While the liver is often involved in infectious mononucleosis, the combination of jaundice and severe abdominal pain is unusual.

S. J. Shane

Quinidine as a Cause of Sudden Death.

G. W. Thomson: *Circulation*, 14: 757, 1956.

The separate risks of sudden death and embolism during therapy with quinidine are appreciable. In 611 recently reported cases (1947-1954) the over-all death rate was 3.3%. In 418 of these patients, the incidence of clinical embolism was 2.3%. Death due to clinically certain cerebral embolism occurred in only two cases.

In 10 fatalities studied at necropsy, embolism was implicated only once. In the majority, no pathologically evident cause of death could be found. Nearly half of the total deaths occurred in patients with rheumatic heart disease and mitral stenosis.

Prior embolism appears to carry a negligible risk of repetition during quinidine treatment. Where no arbitrary dosage limit is set, the mortality appears greater. Severe organic heart disease, congestive heart failure, and associated grave illnesses increase the possibility of a fatal reaction.

Unappreciated toxic effects of the drug, especially on the central nervous system, appear to play a role in the production of sudden death ("quinidine shock"). It is suggested that these effects might be avoided by a more judicious selection of patients for therapy and meticulous supervision of all patients receiving large doses.

S. J. Shane

Cortical Influences Upon the Cardiovascular System in Relation to Impending Operation.

S. I. Teplov and E. A. Sokolova: *Klinitscheskaya Meditsina*, 34: No. 9, 41, 1956.

Electrocardiogram and arterial blood pressure were taken in 60 patients 1-10 days before, immediately prior to operation, and before discharge from hospital. Most patients showed no signs of cardiovascular pathology, and ECG's which were taken previous to admission were almost all within normal limits. The authors found that negative emotions in connection with an impending operation lead to significant changes in the hæmodynamics and the function of the heart muscle. Most typical reactions are tachycardia and rise in arterial blood pressure, which is frequently very significant.

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Among the preoperative ECG's 50% showed changes analogous to those associated with coronary insufficiency. The probable cause of such changes is a reflex narrowing of the coronary vessels under the influence of cortical impulses. Before the patients left hospital the changes usually disappeared except in some cases with severe postoperative complications.

The above observations point to the depth of cortical influences upon the cardiovascular system as well as to the need for careful psycho-prophylaxis in surgical patients during the preoperative period.

V. R. JABLOKOW

SURGERY

Observations on Venous Thrombosis.

J. MCLACHLIN AND J. C. PATERSON: *A.M.A. Arch. Surg.*, 73: 606, 1956.

The veins of the pelvis, thigh and calf were dissected in 165 autopsies at Westminster Hospital, London, Ont. Forty-nine per cent of venous thrombi were found above the superficial femoral vein. On four occasions pulmonary embolism was found to have originated in thrombophlebitis, so that an inflammatory thrombus is not secure and the clinical differentiation of phlebothrombosis from thrombophlebitis is dangerous. Study of the vein walls failed to show local injury or intimal disease as playing a part in the initiation of thrombi. Neither fibrinogen, fibrinogen B, antithrombin, fibrinolysin, alpha-tocopherol blood levels nor platelet counts were of any value in predicting the finding of venous thrombi. Most of the thrombi found originated in relation to a valve.

The best prophylaxis against venous thrombosis and pulmonary embolism is the maintenance of an efficient circulation in the lower extremities by posture, during as well as following operations. Surgical ligation of the superficial femoral vein, either prophylactically or therapeutically, does not appear to be sound.

BURNS PLEWES

Neurologic Complications of Aortic Surgery.

H. D. ADAMS AND H. H. VAN GEERTRUYDEN: *Ann. Surg.*, 144: 574, 1956.

Though operative procedures on the aorta have become well established and are carried out with success and few difficulties, the spinal cord remains the organ most sensitive to vascular occlusion. The spinal cord is not damaged during infrarenal aortic surgery, but above the renal arteries even temporary occlusion of the aorta below the subclavian or ligature of the thoracic intercostal vessels may cause spinal damage. There are extreme differences in the segmental pattern of the cord blood supply among individuals.

Studies of the arterial supply to the spinal cord are described, and the chances of cord damage from operations for coarctation, aortic resection and temporary occlusion discussed. The minimum safe time for occlusion of the blood supply to the cord is thought to be less than 18 minutes.

Some neurological complications after aortic surgery are caused by ischæmia of peripheral nerves.

BURNS PLEWES

Surgical Management of the Complications of Reflux Œsophagitis.

F. H. ELLIS, JR., H. A. ANDERSEN AND O. T. CLAGETT: *A.M.A. Arch. Surg.*, 73: 578, 1956.

Reflux œsophagitis is a common complication of sliding hiatus hernia. The results of treatment of 45 patients at the Mayo Clinic who did not undergo surgical reduction of a diaphragmatic hernia are reviewed. Though most had an apparently short œsophagus, it was not believed to be congenitally short. Poor results following cardioplasty led to the abandonment of the procedure. The lesion is often associated with duodenal ulcer and often follows persistent vomiting.

Surgical intervention is recommended early if strictures, intractable pain, perforation or hæmorrhage occur. Another indication is a suspicion of carcinoma.

Œsophagogastrectomy with œsophagogastrostomy resulted in good recovery in three out of nine patients. Six had recurrent œsophagitis. Œsophagogastrectomy with œsophagojejunostomy gave good results in four patients though two have trouble maintaining their weight. Œsophagogastrectomy with œsophagogastrostomy and antrumectomy was successful in giving relief to eight out of nine patients for the year they have been followed. One had scleroderma of the œsophagus and has had to be dilated since operation. Subtotal gastric resection was followed by good results in eight out of 15 patients. Five patients had to have postoperative dilatations.

Removal of the cardia, lower œsophagus and gastric antrum appears to remove the ulcerated or constricted area, prevent reflux, maintain the normal pathway for food and leave a suitable food pouch. A vagotomy is necessarily also accomplished. So far this has given the best results for complicated reflux œsophagitis.

BURNS PLEWES

An Experimental and Clinical Study of Vascular Spasm.

E. H. SIMMONS: *A.M.A. Arch. Surg.*, 73: 625, 1956.

Experimental and clinical material is presented to show that stretching the vascular system results in arterial spasm and ischæmia. Excessive traction in the treatment of fractures may initiate diffuse vascular spasm. In fractures which have been allowed to shorten for a period, arterial spasm may follow adequate reduction and fixation. Similarly, ischæmia and Volkmann's contracture may follow the correction of flexion deformities. The early recognition of ischæmia depends on attention to pain, loss of movement and absence of sensation. Apparent "good colour" and warmth in the early stages may lead to false reassurance. As soon as recognized, the stretch of the vascular system should be terminated by allowing the deformity to recur to the necessary degree. Gradual correction of flexion deformities or shortening is recommended.

BURNS PLEWES

The Acalculous Gall-Bladder.

F. GLENN AND H. MANNIX, JR.: *Ann. Surg.*, 144: 670, 1956.

The doubtful value of cholecystectomy when there are no stones and the gall-bladder is not acutely inflamed was explored by the study of such cases at the New York Hospital. Review of clinical findings and laboratory tests was not helpful, nor were oral cholecystograms, which were usually reported as showing poor concentration or delayed emptying or being suggestive of stones. In most cases the surgeon was faced with a dilemma when no stones could be palpated and an exploration for another cause for the symptoms—duodenal ulcer, renal disease, hiatus hernia, diverticulitis, pancreatitis and so on—was without results and cholecystectomy was performed because of deformity or adhesions or thickened wall or abnormal cholecystogram. A review of the microscopic slides led to doubt whether the surgeon's impression of a thick-walled gall-bladder or the pathologist's "evidence of chronic cholecystitis" is indicative of gall-bladder disease. There was a high incidence of postoperative complications in this group: 22 in 135 cases (16%) and 3 deaths (acute liver necrosis, carcinoma of the pancreas and coronary occlusion). Follow-up of 121 of the 135 patients showed poor results in 24%.

The removal of the so-called chronic gall-bladder without stones is not to be undertaken lightly. The incidence of mistaken diagnosis is embarrassingly high. A single oral cholecystogram in which the gall-bladder is not visualized should not be accepted as strongly supporting the diagnosis of cholecystitis. Biliary drainage showing cholesterol crystals is strong evidence for calculous disease. If the surgeon at laparotomy finds the gall-

bladder to be within normal limits, he should not remove it. An enlarged lymph node between the cystic artery and duct is an indication of cholecystitis. Consultations in the operating room are recommended in these cases.

BURNS PLEWES

OBSTETRICS AND GYNÆCOLOGY

Prolapse of the Umbilical Cord.

P. RHODES: *Proc. Roy. Soc. Med.*, 49: 937, 1956.

Prolapse of the cord is responsible for one in 16 stillbirths. Fetal death may be due to umbilical vessel spasm. Treatment should be by immediate delivery on diagnosis. If conservative treatment has to be used, handling and cooling of the cord should be avoided. Ross MITCHELL

The Management of Transverse and Oblique Lie in Labour.

J. M. HOLMES: *Guy's Hosp. Rep.*, 105: 428, 1956.

When prophylaxis has failed and labour has become established in the presence of a transverse or oblique lie, immediate delivery will achieve the best results and will reduce the maternal morbidity. The choice of Cæsarean section or internal version followed by immediate breech extraction will depend upon the degree of cervical dilatation. The fetal dangers of version followed by delayed breech extraction are emphasized. Ross MITCHELL

THERAPEUTICS

Allergy to Isoniazid. Successful Immunization in Two Cases.

H. BROWN, G. GOLDSTEIN AND G. CHAPMAN: *Am. Rev. Tuberc.*, 74: 783, 1956.

Two types of untoward reaction to isoniazid are well known. The more common is a toxic one, examples of which are peripheral neuritis and convulsions. The less usual reaction is allergic. Examples of this are drug fever, hepatitis, allergic pneumonia, and various types of dermatitis. It is generally assumed, because of positive skin tests and because of a history, signs, symptoms, and a time relationship compatible with allergic pathogenesis, that these reactions are caused by antibody reacting with the drug antigen. Such an antibody would be formed as a response to the drug (antigen) while the patient was taking it. Once such antibody levels were sufficiently high, the next dose of the drug (antigen) administered would cause clinical symptoms, presumably by combining with antibody, with consequent cellular damage. The exact site of antibody formation in these cases is not known. Under certain circumstances it may be particularly important for a patient to receive isoniazid although he is allergic to it. In these situations special effort should be made to enable the patient to tolerate the drug safely. This paper deals with two such cases in which no other course seemed advisable and immunization with isoniazid was attempted.

These patients were thought to be allergic to isoniazid (even though they were allergic to another drug as well) because of the following facts: Each had symptoms shown to be caused by antigen-antibody reactions in other cases. The symptoms occurred after an interval suitable for the formation of antibodies. Patch tests to isoniazid were markedly positive. They are negative in most patients who receive this drug. During "immunization" the patients developed on several occasions marked local or generalized reactions of the type seen in allergic patients when an overdose of antigen has been given.

Both patients were "immunized by subcutaneous injection of graduated doses of a solution of isoniazid, starting with infinitesimal quantities and gradually increasing to 50 mg. daily."

It is believed that the benefit of isoniazid should not be denied any hospitalized tuberculous patient allergic to the drug until immunization has at least been attempted. Special training in allergy probably is not necessary for this type of immunization. However, the ability to differentiate allergic from other complications makes the task easier for the immunizing physician.

The present writers were unable to find in the literature any previous case of attempted immunization with isoniazid. S. J. SHANE

The Present Status of Skeletal Tuberculosis: Statement of the Committee on Therapy.

J. B. AMBERSON *et al.*: *Am. Rev. Tuberc.*, 74: 814, 1956.

Treatment of skeletal tuberculosis is a joint responsibility of the internist and orthopædic surgeon.

Early in the course of treatment, a joint plan of therapy should be formulated which would include all aspects of general as well as local treatment. This plan should be rechecked periodically to obtain the best result.

Chemotherapy has vastly improved the prognosis and reduced morbidity and mortality. It should be given without interruption up to 18 months to two years. Its effect has been to make surgery much safer and with fewer postoperative difficulties. Some persons, particularly children, have escaped the need for fusion procedures. Amputations are greatly reduced.

Early diagnosis offers the hope that additional lesions may be spared surgical intervention. A high degree of suspicion regarding possible tuberculosis must be maintained if these lesions are to be brought under proper treatment early. S. J. SHANE

Usefulness of Bioflavonoids and Ascorbic Acid in Treatment of Common Cold.

H. E. TEBROCK, J. J. ARMINIO AND J. H. JOHNSTON: *J. A. M. A.*, 162: 1227, 1956.

The effect of 1 g. of bioflavonoid and/or 200 mg. of ascorbic acid administered daily in aborting or curing the common cold was tested in a controlled double-blind trial on over 1900 subjects. The medicaments were given either singly or in combination, in addition to the usual treatment used to alleviate symptoms. No appreciable effects were observed after three days on subjective or objective improvement; on disappearance of running nose, sneezing, cough, hoarseness, malaise, headache, postnasal drip, or sore throat; on decrease in nasal secretions or obstruction or pharyngitis; or on time lost from work. In the opinion of the writers, neither of these drugs in the dosage given significantly alters the course of the common cold. S. J. SHANE

Parkinsonism: Treatment with Curare.

H. BERGER: *Ann. Int. Med.*, 45: 946, 1956.

Spasticity, rigidity and tremor of Parkinson's disease can be relieved with intramuscular repository curare even in patients whose symptoms were unrelieved by other, more commonly used drugs.

Although curare acts on the motor end-plates and not at the site of the lesion in the brain, the noxious impulses from the latter are interrupted by the curare so that the spasticity and tremor disappear. The arms and legs can be bent easily and the cogwheel effect is dissipated; festination is relieved.

The effect of repository curare in the older patients with paralysis agitans was prolonged, so that patients could get along with injections at intervals of from 10 days to two weeks. Patients were enthusiastic about their improvement, though objective evidence of change was not so marked as in younger patients.

By continuing respiratory curare with Artane and Cogentin, the doses of curare could be spaced out and reduced to a level where dangerous complications could be avoided. S. J. SHANE

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PATHOLOGY

Role of Fibrin Thrombi in the Genesis of the Common White Plaque in Arteriosclerosis.

D. M. HAUST, H. Z. MOVAT AND R. H. MORE: *Circulation*, 14: 483, 1956.

A year ago we presented the morphological appearance of various early arteriosclerotic lesions and their further evolution. It was shown that one way by which arteriosclerosis develops and progresses is the deposition of mural fibrin thrombi and their incorporation into the arterial wall.

In our studies since then, we have attempted to define the significance and incidence of mural fibrin thrombi in the genesis of the common white arteriosclerotic plaque of the aorta. White opaque plaques could be identified microscopically as recent fibrin thrombi. Pearly white plaques were composed of a young, acid mucopolysaccharide-rich connective tissue, containing capillaries, numerous young smooth muscle cells and remnants of unorganized thrombus. Newly formed collagen and elastic fibres were present in the polysaccharide-rich tissue, mainly around capillaries and smooth muscle cells. In still other plaques the AMP material was almost entirely converted into collagenous tissue. It was concluded that these various microscopic pictures represent stages in the organization of mural fibrin thrombi—older thrombi, completely converted into connective tissue at one end, and recent thrombi composed almost exclusively of fibrin and cells at the other end of the scale. The outcome of this process is the formation of a fibrous plaque, the origin of which is difficult to determine when the steps in its development from recent thrombi are not evident.

White fibrous plaques were studied in 29 aortæ. Thirteen of these presented direct evidence of thrombotic origin in the form of remnants of unorganized thrombus material within the organizing plaques. Of a total of 58 plaques studied, 24 showed evidence of thrombotic origin. Since all transitions between plaques in various stages of organization with and without remnants of fibrin thrombus material were encountered, it was concluded that all fibrous white plaques studied probably arose on the basis of mural fibrin thrombosis. Sometimes these white fibrous plaques overlay atheromatous lesions. However, no conclusions were possible as to the relationship of the mural fibrin thrombi to the genesis of the atherosclerotic lesions in these cases.

AUTHORS' ABSTRACT.

DERMATOLOGY

The Chemosurgical Treatment of Far-Advanced Cutaneous Carcinoma.

R. LAUBENHEIMER AND A. C. CURTIS: *A.M.A. Arch. Dermat.*, 74: 659, 1956.

The authors describe their experience with chemosurgery of skin cancers. Chemosurgery is the term coined by Mohs for his technique of the microscopically controlled removal of a cutaneous neoplasm. The procedure has three steps: (1) chemical fixation of the tissue *in situ*, (2) excision and pathological identification of a layer of fixed tissue and (3) systemic microscopical search for cancer in each layer of tissue by frozen section. The tumour is carefully mapped and each excised piece is labelled by a dye. If tumour is still present at the most inferior portion of one fragment, the process is repeated in that area of the tumour where the fragment originated. The beauty of this method is that only 1-2 mm. of normal tissue is destroyed and there is complete histological confirmation at all stages.

The authors recommend the use of this technique in skin cancers which have recurred after radium or x-ray therapy (especially over cartilage), where the patient is a poor surgical risk and the operation cannot be performed under local anæsthesia, where there is recurrence after surgery, or where the surgical removal would have to be of the heroic type.

Chemosurgery can be done on an outpatient basis. As the excised tissue is already fixed, bleeding is no problem. Pain after application of the fixative is minimal and can be controlled by acetylsalicylic acid or codeine.

Three cases are described in which this method was used. One was a squamous-cell carcinoma of the lip which had been treated twice by radium, once by electrodesiccation and curettage and once by surgery. The tumour recurred. The second case was a basal-cell carcinoma on the nose which recurred after two treatments with x-ray therapy. The third case was a large squamous-cell carcinoma of the ear lobe which recurred after x-ray therapy. Surgery would have resulted in almost complete removal of the ear. Chemosurgery was used in these three cases with good results.

ROBERT JACKSON

Results in the Treatment of Vitiligo with 8-Methoxypsoralen.

S. A. SHELDON, E. R. HARRELL AND A. C. CURTIS: *A.M.A. Arch. Dermat.*, 74: 9, 1956.

8-Methoxypsoralen is an active repigmenting agent which has been isolated from the Egyptian plant *Ammi majus* Linn. Extracts of this plant have been used for centuries in Egypt for vitiligo.

Twenty-five patients with vitiligo were treated with both topical and systemic 8-methoxypsoralen followed by sunlight or ultraviolet light. All were followed up for four months or more. Four were cured, eight improved, and 13 showed little or no change. Side-effects were few and controllable. Combined topical and systemic therapy seemed to be more effective than topical therapy alone. Controlled and regular exposures to sunlight or ultraviolet light were necessary.

ROBERT JACKSON

INDUSTRIAL MEDICINE

Silage Gas Poisoning: Nitrogen Dioxide Pneumonia, A New Disease in Agricultural Workers.

R. R. GRAYSON: *Ann. Int. Med.*, 45: 393, 1956.

Two cases of silage gas poisoning are presented, one of them fatal. The oxides of nitrogen were definitely found to be the noxious agents. Silage gas poisoning due to oxides of nitrogen is essentially a diffuse chemical bronchopneumonia caused by the irritating action of nitrous and nitric acids on the respiratory tree. The disease may be mild or severe, depending upon the degree of exposure. Nitrogen dioxide pneumonia has been described many times in industrial toxicology but apparently has not previously been described in the medical literature as due to inhalation of gases from ensilage.

Special studies done on the corn ensilage and on the actual gas from the silo in which the two patients were poisoned proved that there was a poisonous concentration of the oxides of nitrogen. This condition was due to a combination of drought, high-nitrate soils and an unventilated silo. Other studies demonstrated the toxicity of the actual gas and of experimentally produced gas from the same ensilage.

Heretofore, all silage gas poisoning in man has been thought to be due to carbon dioxide inhalation or simple asphyxia. The industrial and agricultural literature on the toxicology of nitrogen oxides and on silos and toxic ensilage is reviewed.

Silage gas poisoning due to the oxides of nitrogen with the production of chemical pneumonia is probably more common than is recognized. Physicians in rural areas should be aware of the possibility of this disease during summer periods when corn is being placed in silos, particularly during times of drought.

No specific treatment is known for the resulting bronchopneumonia.

S. J. SHANE

OBITUARIES

DR. STRONG

We regret to announce the sudden death of DR. GEORGE FREDERICK STRONG, M.D., D.Sc.(Hon.), LL.D., F.A.C.P., F.R.C.P.(London), F.R.C.P.[C.], Hon. F.R.A.C.P., in Montreal on February 26. He was born in St. Paul, Minn., and graduated from the University of Minnesota in 1918 with a B.Sc., and in 1921 with his M.D. He interned at University Hospital, Minneapolis. He did postgraduate work at the Vancouver General Hospital, 1920-21, and was voluntary graduate assistant at Peter Bent Brigham Hospital, Boston, Mass., 1922-23. In 1923 he was elected a Fellow of the National Research Council of Brigham Hospital. In 1926 Dr. Strong joined the staff of the Vancouver General Hospital. He became a senior in medicine in 1936, director of the heart station in 1930, and acted as chief of the department of medicine from 1946 to 1951. He became a diplomate of the American Board of Internal Medicine in 1938. Since 1951 he had been Clinical Professor of Medicine at the University of British Columbia. Dr. Strong was president of the Vancouver Medical Association, 1929-30, the B.C. Medical Association, 1936-37, and of the Canadian Medical Association and the American College of Physicians, 1954-55. He had been a charter member and president of the North Pacific Society of Internal Medicine, vice-president of the Canadian Heart Association in 1951, a charter member and first president of the Family Welfare Bureau of Greater Vancouver, president of the Greater Vancouver Health League, and a director and president of the Vancouver Council of Social Agencies. He was president of the National Heart Foundation of Canada, a director and president of the British Columbia Cancer Foundation, a director of the B.C. Division of the Canadian Cancer Society, director and vice-president of the Western Society for Rehabilitation. He was also chairman of the Medical Board of the B.C. Medical Research Institute. Dr. Strong was a member of the Pacific Inter-urban Clinical Club, the B.C. Society of Internal Medicine, the American Heart Association and the International Heart Association.

He is survived by his widow and one daughter.

R. H. Marlow, Vancouver

Dr. G. F. Strong

A.D.K. writes:

"The passing of Fritz Strong in the full flowering of his professional life leaves a gap in Canadian medicine which will not soon be filled. His record of achievement in local, provincial, national and international affairs is unique, and it is characteristic of the man that he was proceeding to his Presidential duties with the National Heart Foundation of Canada when stricken with his fatal illness. Activity was the keynote of all his endeavours. He vitalized the individuals and the groups with whom he had dealings, and all of us will recall the force of his personality. This able man had cheerfully and wholeheartedly assumed the responsibilities of high office in medical organizations so numerous that their roster is wearying. On each of them he left the imprint of his energy and integrity, and the wonder is that he was able to accomplish so much. We note with approval that his work has been recognized in recent years by the award of honorary degrees by discerning Canadian universities. These academic distinctions pleased him because, basically, his contribution to medical education and his leading part in the establishment of the Faculty of Medicine at the University of British Columbia gave him the greatest satisfaction.

"His work for The Canadian Medical Association deserves more than passing mention. I shall never forget my first contact with Dr. Strong at the Annual Meeting in Ottawa in 1937. As President of the British Columbia Division, he led the representatives of that Province in the deliberations of the General Council. Always articulate and forthright, he impressed all his colleagues with the breadth of his knowledge and the conviction with which he expressed himself. It was only natural that his election to the Presidency should follow when the doctors of British Columbia had the opportunity to nominate their best man. As a member of the Executive Committee he contributed materially to the advancement of The Association in many ways, because breadth of vision and a sense of urgency characterized his attitude. His Presidential tour of the Divisions in 1954-55 was not only a triumphal procession, but it exemplified his practical approach to a matter which he considered to be important. Convinced that the 'third phase of medicine' had been too long neglected, he used the opportunity to acquaint the doctors of Canada with the subject of rehabilitation. He could speak with authority, because he had been prime mover in the establishment of the Western Society for Rehabilitation, and his demonstration of the 'let's do it ourselves' attitude was instrumental in stimulating activity throughout the nation. In the councils of The Association one was never in doubt as to the position of Fritz Strong. He was a good doctor and a champion of every cause designed to improve the quality of medical care.

"This man of action was a firm friend and a good companion. After the heat and turmoil of debate he would turn with equal zest to the pleasures of social activity and in the role of host he excelled. Those of us who have experienced the warmth of hospitality in his home or on official occasions, will realize how significantly he was afforded the support of his wife, Ruth, and his daughter, Bobby. To them our thoughts turn in deepest sympathy for the loss of a husband and father."

DR. JETHRO W. COUNTER died on January 29 in the Alexandra Hospital, Ingersoll, Ont. He was born at Cataraqui, Ont., and graduated from the University of Toronto in 1906. Dr, Counter had practised in Ingersoll for 44 years.

He is survived by his widow and four daughters.

DR. RAYMOND LESLIE HALL, 36, died on February 1 in Saskatoon, Sask. He was born at Wadena, Sask., and graduated from the University of Toronto in 1944. Dr. Hall served in the Medical Corps in World War II, and practised at Elrose, Sask., for seven years. He completed a postgraduate course in ophthalmology at the University of Toronto last June, before going to Saskatoon.

Dr. Hall is survived by his widow, two daughters and a son.

DR. GEORGE P. HOWLETT, 74, died in Ottawa on February 13. He was born in Ottawa, and graduated from McGill University, Montreal, in 1906. He served overseas in World War I with the First Medical Corps of Ottawa, and at the Princess Patricia Hospital, Bexhill, England. After his return to Canada he accepted a medical appointment with the Department of Pensions and National Health, and for several years was superintendent of St. Luke's Hospital, Ottawa. Dr. Howlett was a past president of the Ottawa Branch of the St. John Ambulance Brigade. He had been divisional surgeon with the No. 73 Ottawa Ambulance Division until three years ago. He was medical officer of the Dominion of Canada Rifle Association for several years.

Dr. Howlett is survived by his widow, one son and two daughters.

DR. MANFRED I. HUMPHRIES, founder of the Humphries clinic, Prince Albert, Sask., died on February 6 in Miami, Fla. He was born at Carberry, Man., and graduated from the University of Manitoba in 1908. He went to Prince Albert in 1910 to practise in partnership. From 1923 to 1934 he practised alone, then set up the Humphries-Lee clinic with Dr. G. H. Lee. In 1940 he established the Humphries clinic, which he headed until his retirement in 1951.

Dr. Humphries is survived by his widow, a son and a daughter.

DR. HUXLEY S. JOHNSON, 80, a former superintendent of the Colonel Belcher Hospital, Calgary, Alta., died there on February 8. He was born in Wellsford, N.B., and graduated in medicine and dentistry from the University of Maryland, Baltimore, in 1903. He was a ship's surgeon in his youth, before practising in Liberia, West Africa, and in the Gold Coast. In 1911 Dr. Johnson first settled in Calgary. For a time he was Director of Medical Services for the Province of Alberta. During World War I he served on the hospital ship *Araguara*. He left the medical corps in 1919 to join the staff of the Colonel Belcher Hospital, where he remained until 1945.

Dr. Johnson is survived by a daughter and a son.

DR. JAMES ERNEST McASKILL, 68, an otolaryngologist, died in Watertown, N.Y., on October 6. He was born in Highgate, Ont., and graduated from Queen's University, Kingston, Ont., in 1914. He served in World War I with the 2nd C.M.R.'s and later with the 9th Field Ambulance and at No. 1 General Hospital in France. He was formerly chief of the eye, nose and throat department of the Mercy Hospital, past-president of the medical staff, and honorary member of the medical staff. He had also been chief of the eye, nose and throat department of the House of the Good Samaritan. Dr. McAskill was a Fellow of the American College of Surgeons, and a member of the Queen's University board of trustees.

He is survived by his widow.

DR. G. W. MYLKS, Sr., a Kingston doctor for 54 years, died in Florida on February 13. He was born at Algonquin, Ont., and graduated from Queen's University, Kingston, Ont., in 1897. He did postgraduate work in Baltimore, New York, London and Vienna in obstetrics and gynæcology. Dr. Mylks did his internship at the Kingston General Hospital. He was appointed demonstrator and Professor of Anatomy at Queen's in 1900, and in 1901 became Professor of Obstetrics. In 1915 he was appointed Professor of Gynæcology. From 1928 until 1953 he was professor in both departments. Dr. Mylks served with the Medical Corps at a Canadian army base hospital during World War I. He was a Fellow of the American College of Surgeons.

Dr. Mylks is survived by his widow and one son.

DR. HENRI PICHETTE, 61, chief of the ophthalmology department of St. Sacrement Hospital, Quebec, died on February 2. He graduated from Laval University, Quebec, in 1919, and did postgraduate work in ophthalmology in Paris in 1920-21. Upon his return he was appointed assistant in the ophthalmology department of the Hotel-Dieu Hospital. In 1937 he became head of the ophthalmology department in the new St. Sacrement Hospital. Dr. Pichette was also Professor of Clinical Ophthalmology at Laval University.

He is survived by his widow, one son and two daughters.

DR. ROBERT WERNER SCHNARR, 83, died in Kitchener, Ont., on January 31. He was born in Tavistock, Ont., and graduated from the University of Toronto in 1899. He studied homœopathic medicine in Philadelphia. In 1901 he began to practise in Kitchener. Dr. Schnarr was homœopathic representative on the Council of the College of Physicians and Surgeons of Ontario for almost 25 years, and acted as president of the Council in 1935-36.

He is survived by his widow, three sons and three daughters.

DR. JOSEPH E. TREPANIER, 58, died in Notre Dame Hospital, Montreal, in January. He graduated from the University of Montreal in 1927. Dr. Trepanier was company doctor for the Dominion Rubber Company.

He is survived by his widow and one son.

PROVINCIAL NEWS

BRITISH COLUMBIA

The opening of the Legislature of British Columbia at Victoria this month brings into the realm of discussion a number of matters dealing with public health and medical matters. Amongst these is the question of the establishment of a Dental Faculty at the University of British Columbia.

The shortage of dentists in this province is becoming increasingly marked. In these days when everybody appreciates the need for care of the teeth, especially in children, a ratio of one dentist to over 2000 people is not adequate.

B.C. aspirants to a degree in dentistry are finding it increasingly difficult to get into any dental college: and this is especially true of Canadian institutions, only five of which have Dental Faculties.

The Government is most sympathetic to the idea, and the University of B.C. is only too anxious to create such a faculty—but it will probably be some years yet before one is established.

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Another question in which the Government is keenly interested is the matter of hospital beds for chronic cases. The Honourable Eric Martin, Minister of Health and Public Welfare, has stated that he hopes that the B.C. Hospital Insurance Act will be amended at this session to allow for a start on this scheme, where payments will be made under B.C. H.I.S. There are at present several institutions, now operating as chronic-care institutions, which will be utilized for this purpose, progressively as the scheme develops.

There is no doubt that this will be a most forward move. It will relieve the active treatment hospitals; it will be more economical to run, and most important of all, it will take care of patients who are badly in need of care and cannot obtain it under present conditions, except by paying for it in full, which few can afford to do. The Government is to be congratulated on this action.

The British Columbia branch of the Canadian Paraplegic Association has recently been formed in Vancouver by a group of paraplegics, working with the support and assistance of a large number of public-spirited citizens.

The object of this branch is to secure three things: first, the hospital care of paraplegics, together with rehabilitation, the facilities for which will be provided through existing institutions, notably the Western Society for Rehabilitation; secondly, the care of the family, as so often the breadwinner is rendered incapable of working; and thirdly, the placing of paraplegics in jobs that they can handle and so earn their living.

The new B.C. Heart Foundation is giving grants to various bodies this year for the purpose of research, amounting to a total of some $25,000. Mr. H. P. Weatherill, the President of the Foundation, made this announcement as he stressed the urgency of research.

The University of British Columbia will receive $15,000, and the Departments of Anatomy, Pharmacology and Surgery will chiefly benefit; these departments are already carrying out many projects in cardiac research.

St. Paul's Hospital's new clinical investigation unit will receive $5,000, while the Vancouver General Hospital will get $4,000 towards the study of new methods in the field of electrocardiography and cardiac physiology.

Mr. Weatherill stated that it was the aim of the Foundation to establish cardiovascular research units at different centres throughout the province.

The Medical Undergraduates' Society of the University of British Columbia will hold its 7th Annual Ball on St. Patrick's Day, March 17, in the Ballroom of the Hotel Vancouver. This has become an important feature of the university year. It was originally designed (in 1949-50) to provide a fund (the Medical Ball Bursary Fund) which would give bursaries to students who needed financial assistance. These students must have a high academic standing. Some 40 students have been helped in this way, and the Ball is becoming more popular and better attended every year.

The General Practitioners Association (B.C. Section) is holding its annual meeting at Harrison Hot Springs in April. An excellent program is being provided.

J. H. MACDERMOT

SASKATCHEWAN

Federal Health Grants totalling $2,000,000 have been approved for Saskatchewan for 1957, the Province's Deputy Health Minister, Dr. F. B. Roth, reported recently. These grants are to cover various categories of health projects. They take in no significant new projects not provided for last year. It was indicated that the total amount of the grant—based on the province's population—will be down slightly from last year.

The project categories covered include: general public health, professional training, mental health grants, tuberculosis control, cancer control, venereal disease control, crippled children, rehabilitation, child and maternal health, laboratory and radiological diagnostic services, public health research, and hospital construction.

Recent changes in regulations under Saskatchewan's Contagious Diseases Act affecting animals make it possible for a farmer to have his entire herd retested at the expense of the Saskatchewan Department of Agriculture, when a test shows the herd to be infected with Bang's disease.

The Prince Albert and District Medical Society were hosts for the annual doctors' bonspiel in Saskatchewan this year, on February 23 and 24. Seven sheets of ice were available and a most enjoyable time was had by those in attendance.

Speaking recently in Regina, Premier T. C. Douglas suggested that the biggest task confronting Saskatchewan in the immediate future was the expansion of its industrial areas. The Premier stressed that the agricultural population of the province, except in the areas eminently fitted to irrigation, could be expected to decrease in the rural areas.

Emphasis must be on the fact that Saskatchewan must have industry. The Premier pointed out that 1955-56 revenues from various mineral royalties and from oil had been estimated at about $18,000,000. Actual revenue, he said, would probably be approximately $23,000,000 and this was some indication of the rapid change in the Province's economy, since less than 15 years ago revenue from this source had been around $690,000.

St. Thomas More College, University of Saskatchewan, was opened on February 7. The official functions included the blessing of the new chapel, followed immediately by a Pontifical High Mass, a luncheon at the College, an afternoon open house and a banquet at the Bessborough Hotel in the evening. G. W. PEACOCK

NEW BRUNSWICK

Dr. T. E. Lunney of the Anæsthetic Staff of the Saint John General Hospital addressed the Medical Society of the St. Croix and Washington Counties on "The history and present-day application of anæsthetics in medical practice" at St. Stephen, N.B., in January. Dr. Hazen Mitchell introduced the guest speaker.

Dr. Graham Knoll is the new president of the Medical Board of St. Joseph's Hospital, Saint John.

Dr. Thomas W. M. Cameron, Professor of Parasitology, McGill University, addressed the Saint John Medical Society on February 21 on "The medical significance of parasites and their differences from other disease organisms". This appearance in Saint John was made during Dr. Cameron's visit to the laboratories in the Maritimes in his capacity as consultant to the Laboratory of Hygiene, Department of National Health and Welfare.

Dr. C. W. Kelly, of the N.B. Department of Health, was the guest speaker at the official opening of the new Tobique Valley Hospital located on the Perth highway south of Plaster Rock. Dr. J. D. Coffin of Plaster Rock cut the ribbon officially opening the new institution.

A. STANLEY KIRKLAND

BOOK REVIEWS

HOSPITAL CARE INSURANCE FOR ONTARIO—The Proposal of the Ontario Government, January 1957.

Everyone interested in health insurance—and that includes the whole of the medical profession—should study this important document. It is almost certain to have a profound influence on the shaping of health insurance in Canada in the years to come, and to affect the lives of many thousands of physicians.

The monograph begins with a description of the background to hospital care insurance. It stresses the particular significance of hospital care in health services. It shows that the crippling costs of hospital care have been met in Ontario by 68% of the population through the method of insurance, particularly in the Blue Cross movement. However substantial numbers of the population are in an uninsurable group, and in the Ontario Government's view it is essential that there be available to everyone a method of budgeting hospital costs that can be maintained at all stages of life, regardless of age, health or health status and at premium rates within their capacity to pay. The role of government is considered to be a limited one, namely that of meeting only absolutely essential needs. A large proportion of the population will require additional protection, which they should purchase from other sources; there is in this area wide scope for voluntary action and private enterprise.

The monograph traces the development of thinking in Ontario on hospital insurance through from 1947 when the Ontario Government introduced a major program of grants to assist hospital construction. The Federal-Provincial meetings in 1955 are outlined and the proposals of the Federal Government on health insurance are examined critically. Ontario's main objections to them are (1) to the exclusion of mental and tuberculosis hospitalization; (2) to the unwillingness of the Federal Government to share in administrative costs; (3) to the exclusion of depreciation costs in the Federal plan; (4) to the Federal cost-sharing formula. The setting up of the Ontario Hospital Services Commission and its functions are outlined. This Commission, of three men with wide experience in the Blue Cross Hospital Care Plan, is charged with the development of a balanced and integrated system of hospitals and related health facilities in Ontario, establishment of new and additional facilities, approval of distribution of capital grants for hospital construction, administration of hospital care insurance as and when it develops, and training and research programs. The Ontario Government believes that ownership of hospitals should remain the responsibility of local communities and charitable organizations. The proposals now under discussion with the Federal Government are outlined. It is expected that the establishment of administrative machinery for a Province-wide plan will require approximately two years, particularly in view of the need for integrating with the Government program several thousand existing contracts for hospital insurance coverage. Their Hospital Care Insurance program is designed to provide in-patient diagnostic services, standard ward care in active treatment hospitals, convalescent hospitals and hospitals for the chronically ill, specific out-patient services, and either simultaneously or at a later date, diagnostic services for outpatients. Benefits are to be universally available to all residents in Ontario who have attained insured status by paying a personal premium. In addition all persons in receipt of public assistance and so-called medical indigents will be paid for. Municipalities will be relieved of most of the cost in the case of medical indigents. As it becomes feasible, membership in the plan will cease to be voluntary and will be made compulsory. Stages by which this change will take place will be determined by the Ontario Hospital Services Commission. Whatever the views of the Federal Government, Ontario feels that it should include services in mental hospitals and tuberculosis sanatoria in its plan.

THE STRESS OF LIFE. Hans Selye, Director of the Institute of Experimental Medicine and Surgery, University of Montreal. 324 pp. Illust. McGraw-Hill Book Company, Inc., New York, 1956. $7.15.

It comes almost as a surprise to read in this book that 20 years or more have gone by since Dr. Selye first formulated his views on stress and the general adaptation syndrome. The present book is designed for layman and scientist alike. Dr. Selye has dedicated it to those "who are not afraid to enjoy the stress of a full life, nor too naive to think that they can do so without intellectual effort". Certainly to read the whole book through requires no little intellectual effort, but the author is kind and warns the lay reader against attempting certain sections of it. For the physician or biologist, here is a clear and masterly exposition of Dr. Selye's views on stress, as accumulated and modified by his 20 or more years of experimental work. The book is divided into five parts. The first part is a historical account of Dr. Selye's thinking as it developed from his early days as a medical student. He introduces the concepts of *ponos* (the fight of the body to restore itself to normal) and homœostasis. First he describes how his search for a new hormone led him to study the "syndrome of response to injury as such", characterized by a horrified colleague as the "pharmacology of dirt". In his second part he defines stress and its characteristics and discusses the general and local adaptation syndromes, introducing the concepts of anti-inflammatory corticoids and pro-inflammatory corticoids. Taking these two groups of substances and their actions as instances of the "fight or flight" situation, he discusses the value of inflammation and other features of this fundamental reaction. He then considers in detail adaptation as a spatial concentration of effort.

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The third part of the book deals with the diseases of adaptation. It contains material on maladaptation and on the correlation of clinical syndromes with laboratory experiments. Not only does Dr. Selye discuss the diseases now generally known as those of adaptation, but he points out the significance of stress in many other fields such as cancer. He is also very candid in describing the various disagreements which have arisen over his work, and the deficiencies which still exist. Book Four is what he terms "Sketch for a Unified Theory" in which he introduces the concept of the smallest reacting unit in biology, the reacton.

The most significant section of the book for the layman is the last section on implications and applications of his studies. These he divides into somatic applications (as in the proper use of shock treatment or tranquillizers), psychosomatic applications (in which he points out the possibility of a person's being intoxicated by his own hormones) and the philosophic implications. He outlines his personal philosophy of gratitude and revenge. Briefly put, this suggests that lasting happiness is obtained through satisfaction of man's innate desire to earn gratitude and to avoid being the target for revenge. This section deserves to be very carefully studied.

This is a stimulating book; even if some readers will not agree with all the conclusions, they should read it with care and ponder on the author's conclusions.

CHEMOSURGERY IN CANCER, GANGRENE AND INFECTIONS. Frederic E. Mohs, University of Wisconsin Medical School. 305 pp. Illust. Charles C Thomas, Springfield, Ill.; The Ryerson Press, Toronto, 1956. $14.75.

Chemosurgery as outlined in this new volume defines a technique of excising malignant, infected or necrotic tissue after preliminary chemical fixation of the tissue *in situ*, a procedure which allows a microscopic control of the extent of excision necessary by means of specially prepared frozen sections. The method is peculiarly applicable to carcinomata of accessible structures having a low metastasizing potential so that cure is possible if the local lesion is completely eradicated. In this method of therapy one is able to examine repeatedly the fixed tissues excised in order to ensure adequate total removal and yet maintain a conservative resection with a minimal resultant scar. No late sequelæ are reported, as all damaged tissue is promptly removed and the resultant scar remains smooth and pliable, there being no reported tendency to subsequent breakdown. Since the cells are fixed by the chemical process without manipulation or trauma, no evidence has been detected to suggest that neoplastic cells are scattered, as for example by the thermal current of electrosurgical therapy. Any residual disease will appear promptly, as it is not bound in dense scar and may therefore be dealt with again as soon as its presence is recognized. Since anæsthesia is not required, the method has no appreciable mortality.

The present report sums up the data collected over many years, all adequately documented and strikingly illustrated, and comparative statistics support the view that the results are somewhat better as far as survival is concerned than the usual results of radiotherapy or surgical excision; this is particularly true in lesions of the head and neck and trunk integument. Surprisingly, even in melanomata with a recognized potential of lymphatic extension the local recurrence rate seems lower than usual and survival statistics are comparable with those from other methods of management.

Nevertheless, the book does draw attention to a new therapeutic concept which will require additional evaluation. Since the technique undoubtedly requires very special facilities not readily available in all hospitals, and as the procedure is time-consuming if the lesion is of any size, this can be done only in special centres. Despite these limitations, the method seems worthy of further careful assessment on the record here reported, particularly in view of changing concepts of the biological nature of cancer and the curative potentiality in situations which favour localization of the neoplastic process.

Almost as a supplement to the main thesis concerning the use of such a procedure in cancer therapy it is pointed out that a similar chemosurgical approach is feasible in certain benign lesions in accessible areas, and also in peripheral digital gangrene.

The actual therapeutic technique is clearly described and the physical necessities of such a special centre are summarized. The book is well written and the illustrations are excellent; although primarily directed at a narrow audience, it should be available as reference material for all practising surgeons.

UROLOGY AND INDUSTRY. Leonard Paul Wershub, New York Medical College, Metropolitan Medical Center, New York City. 151 pp. Charles C Thomas, Springfield, Ill.; The Ryerson Press, Toronto. 1956. $5.50.

Medico-legal problems arising out of industrial accidents become the concern of nearly every doctor on some occasion during his professional life. In such cases personal experience on which to base an opinion regarding the etiological relationship between injury and disease is usually limited, so that pertinent literature is sought and welcomed. "Urology and Industry" by Dr. Wershub will be found of considerable assistance under such circumstances.

The initial section of the book deals with a history of industrial medicine. This is followed by a chapter entitled "The Legal and Medical Evaluation of Causal Relation". Here the author explains in general terms the legal importance of and the methods used for establishing the etiological relationship between injury and disease. The final chapter contains 100 case histories, organized under 17 headings, pertaining to specific urological diseases, e.g. renal calculus, tumours of the bladder, and impotence and sterility. A brief résumé of the clinical and pathological aspects of the disease entity is first presented, and this is followed by the case presentation and the author's personal comments. By means of the latter Dr. Wershub correlates the general principles of cause and effect with specific cases. A pertinent bibliography and an index complete the book.

"Urology and Industry" will be found most useful by the industrial surgeon and the urologist, but any doctor looking for information regarding the causal relationship between injury and disease will be well guided by a consideration of the general information the book contains. The material is clearly and concisely presented, and the author's comments satisfactorily explain the legal problems involved by the specific cases. Dr. Wershub has made a worthwhile contribution by his book.

THE INFANTILE CEREBRAL PALSIES. Eirene Collis, W. R. F. Collis, William Dunham, L. T. Hilliard and David Lawson, Queen Mary's Hospital, Carshalton, Surrey, England. 100 pp. Illust. William Heinemann Medical Books Ltd., London, 1956. 15s.

This is a very good book. It gives a brief biographical sketch of William John Little, who, a cripple himself with a club foot, was the first physician to give a real description of cerebral palsies with their possible etiology; he advocated physiological rather than surgical means to alleviate the condition. The modern trend is swinging back to his ideas.

The authors describe the various forms of palsies, their diagnosis and management. They urge strongly the mother's working with the child in the home under the close supervision of the doctor, rather than putting the child in an institution, for they feel that psychologically the former course is much better for the child. They emphasize the importance of a diagnosis as early as possible and of training in the preschool period so that poor techniques are not developed or the child discouraged by frustration.

They put the incidence of cerebral palsies as from 1.05 to 2.34 per 1000 live births, with 25% of the infants of normal intelligence, 25% ineducable and the other 50% between these extremes.

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TENDON RUPTURE IN RHEUMATOID ARTHRITIS

Finger deformities in rheumatoid arthritis should not always be considered to be the direct result of pathological conditions in the joints. They are occasionally due to subluxations and tendon ruptures. Straub and Wilson of New York (*J. Bone & Joint Surg.*, 38A: 1208, 1956) record five cases in which a patient with longstanding rheumatoid arthritis had suffered a subluxation of the distal end of the ulna at the inferior radio-ulnar joint, and subsequently a spontaneous rupture of extensor tendons of the hand. In three cases it was shown that the rupture was due to degenerative change in the floor of the extensor tendon groove near the distal end of the ulna. Satisfactory results were obtained by repairing the tendon and resecting the distal end of the ulna. These authors believe that spontaneous tendon rupture is not rare in the arthritic hand, but that it is commonly overlooked because of the severity of other deformities.

ONTARIO CANCER STATISTICS

The Twentieth Annual Statistical Report on Cancer from the Department of Health, Ontario, covering the calendar year 1955, has appeared. It contains many statistical tables linked together by a general narrative. The universal trend towards an increase in the crude death rate from cancer is shown; at present about one in every six deaths among Ontario residents of all ages is attributed to cancer. In the 30-year period from 1925 to 1954 there has been an increase in male cancer mortality in all age groups, but for females the curve has now flattened out and begun to fall. It is suggested that this discrepancy may be due to the fact that male cancer is more apt than female cancer to be in less accessible sites and therefore less readily diagnosable. For both sexes and all ages, cancer continues to be second only to diseases of the heart as a cause of death, even in younger age groups.

In the male, cancer of the lymphatic and hæmatopoietic system contributes more deaths under 45 years than cancer of any other site listed; from 45 to 64 years the respiratory system leads, at 65 to 74 years the stomach, and at 75 years and over the genital organs. For all males, the stomach is still the most frequent site of lethal cancer, closely followed by the respiratory system. Up to 25 years in the female the lymphatic and hæmatopoietic systems are the leading sites; at 25 to 34 years the uterus; at 35 to 74 years the breast; and at 75 years and over the intestine, other than rectum. For females of all ages, the breast is still the leading site of lethal cancer.

It is noted that 5.5% of deaths in which the death registration contains a mention of cancer were attributed to some other underlying cause. The study to test the accuracy of death registrations, by comparison with follow-up cards for 1275 patients registered at Ontario cancer clinics, shows that only in eight cases out of this sample was an existing cancer omitted from the death registration. The over-all rate for discrepancies between clinic registration and death registration was about 12%.

Statistics are given on the work of the Ontario cancer clinics. It

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is interesting to note that x-ray therapy is still much the most frequently applied treatment of new cases, and that cobalt-60, now available at six clinics, was used alone or in combination with other methods in the treatment of almost 20% of all non-recurrent cases registered, as compared with 11% in the previous year. The sites most frequently selected for cobalt therapy were lung, bronchus and trachea, other respiratory system, other digestive system and urinary organs. Operation was performed most frequently for cancer of the intestine, including rectum, and the male genital organs.

The Central Statistical Service made a special survey of clinic experience in the treatment of intrinsic cancer of the larynx; the study showed an over-all five-year survival rate of 31.7%.

POPLITEAL CYST

The pathology and classification of cystic swellings in the popliteal space is somewhat obscure. They have been called popliteal cysts, Baker's cysts, posterior herniæ of the knee joint, synovial cysts, etc. At the Mayo Clinic 198 cases of popliteal cyst seen during a 10-year period have been reviewed by Burleson and his colleagues (*J. Bone & Joint Surg.*, 38A: 1265, 1956). Patients had usually complained of a lump and of aching pain in the region of the knee. Of this series, 82 patients were operated upon, one bilaterally. More than two-thirds of the patients were males, and all age groups were represented. Half of the total number had clinical or radiographic evidence of associated knee joint abnormality. The latter was most commonly osteoarthritis, and less commonly rheumatoid arthritis. At operation, 46 of the 83 cysts seemed to arise from bursæ, 26 from herniæ, and 11 from indeterminate sites. Fifty-four communicated with the joint. Pathologically, cysts were classified as fibrous, synovial, inflammatory and in a few cases transitional. There were only five recurrences after operation, but 27 complained of some symptoms afterwards. The authors prefer the name popliteal cyst for this lesion, regardless of where the cyst arises.

EFFECT OF RESERPINE AND CHLORPROMAZINE ON SARCOMA

It has recently been shown that the administration of reserpine to mice carrying the lymphoid tumour L1210 led to deep depression in the subjects and simultaneously to regression of the tumour. A study from the National Cancer Institute, Bethesda, Maryland (*Science*, 125: 233, 1957) shows that similar effects are obtained in mice carrying an intramuscular implant of sarcoma 37. These were given doses of reserpine (50 mg./kg. bodyweight), with a similar group as control. Within an hour, animals given reserpine became deeply tranquillized and remained so for five or six days, by which time practically all were dead, presumably from starvation and dehydration. During this stage body temperature was lowered and tumour growth ceased at once in reserpine-treated mice, whereas after six days the average volume of the tumour in untreated mice was three times the initial volume. Chlorpromazine produced a comparable effect. Histologically the

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tumours underwent certain changes which are difficult to assess. Whether the action of reserpine and chlorpromazine is specific or is mediated through the host, it is suggested that these drugs provide additional means for study of the host-tumour relationship.

POLIO AND PREGNANCY

A study of 79 cases in which poliomyelitis developed during pregnancy in Connecticut confirms the view expressed elsewhere that the pregnant woman is more susceptible to poliomyelitis than the non-pregnant woman. In the present series, 22 women developed poliomyelitis in the first trimester, 42 in the second and only 15 in the third trimester. The danger of death from poliomyelitis appeared to be greatest if the disease was contracted during the third trimester; on the other hand, the danger of fetal loss seems greatest if the disease develops early in pregnancy. In the present series seven patients out of the 79 died, an incidence twice that of mortality in non-pregnant women in Connecticut. There were 55 deliveries of viable infants and 15 fetal deaths. There was a hint that women bearing a male fetus were more susceptible to poliomyelitis in the first trimester of pregnancy. Women with polio tended to have babies weighing under normal at term. It would seem that polio in pregnancy may lead to a general retardation of development of the infant.—M. E. Rindge, *New England J. Med.*, 256: 281, 1957.

RADIOACTIVE VITAMIN B_{12} IN DIAGNOSIS OF NEUROLOGICAL DISORDERS

Subacute combined degeneration of the spinal cord is caused by deficiency of vitamin B_{12}, whose absorption is impaired by lack of intrinsic factor. The most satisfactory way therefore of establishing the diagnosis is to demonstrate that the patient cannot absorb this vitamin. Since the vitamin contains cobalt, it may be labelled with radiocobalt, given orally, and the urinary excretion in the succeeding 24 hours measured. A study by Schilling *et al.* in 1955 showed that control subjects excreted 7-22% of ingested radioactive vitamin B_{12} in the urine in 24 hours, whereas patients with pernicious anæmia excreted 1% or less.

Berlyne and his colleagues from Manchester, England (*Lancet*, 1: 294, 1957), applied this technique to the investigation of neurological disorders. They gave an oral solution of vitamin B_{12} containing a dose of 0.5 millicuries of radioactive cobalt and scanned the 24-hour urine collection with a scintillation counter. Normal subjects gave figures for excretion of 4-7.1%

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whereas the patients with known subacute combined degeneration excreted 0.3-1%. When the latter were given 100 mg. of intrinsic factor as well, the excretion rose to 4.1-6%. The test was applied to several doubtful cases, and results suggest that it is a valid one for distinguishing subacute combined degeneration from other neurological cases.

WHAT HOURS DOES THE DOCTOR WORK?

According to *Medical Economics* (February 1957), the typical American physician devotes 12 hours to the practice of medicine for every eight hours that his fellow citizen puts in. In other words, the average working week for an M.D. in the United States is 60 hours. Figures show that in 1943 the average doctor worked 66 hours a week; this figure dropped to 60 by 1947 and to 58 by 1952 and has now risen again to 60 in 1956. The spread is a wide one, for some 14% of doctors work at least 80 hours a week, while 6% do less than 30 hours. Going into partnership has no apparent effect nor do the working hours vary much by income, region or years of practice. The typical GP puts in about an hour a day more than the typical specialist. Some comparable figures were recently obtained by the College of General Practice of Canada from a questionnaire filled out by 112 Ontario practitioners at a scientific meeting. These figures suggest that a Canadian GP works on an average an 11-hour day and spends three nights a week in his office. The man in the middle-sized centre worked the hardest, for the GP's in communities of under 5000 population worked a 10.5 hour day, those in centres of 5000-50,000 population worked an 11.8 hour day and those in big cities put in 10.7 hours. Incidentally, the average patient load per day was exactly the same in the two surveys, namely, 25 patients a day in general practice and 20 a day in specialty practice.

A DOCTOR LOOKS AT NURSING

In the November 1, 1956, issue of this Journal, two doctors gave their comments on nursing education. A somewhat different point of view is now available from New Brunswick, where Dr. W. Ross Wright, President of the New Brunswick Medical Society, gave his views on nursing in his presidential address. After surveying the general field of nursing, he stated that there was a great lack of nurses in Canada trained in administrative and supervisory work. There was also a great lack of classroom and clinical instructors in nursing.

He outlined the history of nursing from the ancient cultures of Egypt and India through the renaissance of nursing in the Victorian era, and then turned to a consideration of the present condition of nursing in Canada. He referred to the experiment from 1948 to 1952 in the Metropolitan School of Nursing of Windsor, Ontario, and the 1950 experiment at the Toronto Western Hospital. Both experiments were highly

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successful in showing that in a two-year course it was possible to train a nurse in all aspects of her work as well as in the former three-year course, and in addition give her educational experience and knowledge which was not given in the old type of training, based on the view that a nurse was an economic asset to the hospital, rather than a pupil to be educated.

He alluded to the spirit of unrest and dissatisfaction now prevalent in the nursing profession, as evidenced by the tendency to change jobs frequently. In outlining the solutions to the problems which he had raised, he began by considering the financial one. How can the expenses of nursing education be met? It scarcely seems reasonable to expect the poor sick man today to pay for not only his nursing care, but also the training of his nurses. The importance of maintenance of nursing schools in society suggests that independent, government-financed schools of nursing are the solution of the problem.

Turning to the minimum education requirements for a nurse, he suggested that it is not possible for a nurse to be too well educated. The best educated and the most highly cultured people are needed in the nursing profession today. Caring for a patient is now a team function, and in recent years nursing assistants have entered the team and must be recruited in ever increasing numbers to relieve the registered nurses of tasks that are performed by their assistants. The salaries of head nurses, supervisors and teachers in the nursing profession should be made comparable with those in other walks of life.

Dr. Wright also made a plea for greater use of men in nursing, with particular reference to the well-educated man who could give leadership and fill responsible positions in teaching and administration. Much of the secretarial work now done by registered nurses could well be done by competent secretaries under the direction of the nurse. He ended by saying that the teaching methods of a century ago are not adequate for the nursing profession of the present generation, and referring his audience to the survey of New Brunswick nursing prepared in 1956 by Miss Kathleen Russell.

CANADIAN MEDICAL UNIT IN EGYPT

Medical services for the ten-nation United Nations military force in Egypt are being handled by Norwegians and Canadians. The Norwegian contingent operates a field hospital, and the Royal Canadian Army Medical Corps operates a Canadian base hospital which takes in all cases evacuated from base installations and UNEF Headquarters, as well as patients evacuated from the tented Norwegian unit. The hospital is commanded by Lieutenant-Colonel James S. Hitsman, of Kingston, Ontario; under his command are six other medical officers, a pharmacist and 42 soldiers. The hospital operates in three single-storey villas converted from former quarters for married R.A.F. personnel. The hospital's clientele is cosmopolitan, for the first few patients hailed from Sweden, India, Yugoslavia, Finland and Switzerland.

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THIRD ANNUAL LECTURE IN GERIATRICS

Irving S. Cooper, M.D., M.S., Ph.D., Assistant Professor at New York University-Bellevue Medical Center and Director of the Department of Neurologic Surgery, St. Barnabas Hospital, New York City, will deliver a lecture in the auditorium of Baycrest Hospital for the Chronically Ill and the Jewish Home for the Aged, 3560 Bathurst Street, Toronto, on Thursday, March 21, at 8:30 p.m.

The subject will be "Newer Methods of Alleviation of Parkinsonism and Other Involuntary Movement Disorders".

All members of the medical profession and students are invited.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The next scheduled Examinations (Part II), oral and clinical, for all candidates will be conducted at the Edgewater Beach Hotel, Chicago, Illinois, by the entire Board from May 16 through May 25, 1957. Formal notice of the exact time of each candidate's examination will be sent him in advance of the examination dates.

Candidates who participated in the Part I examinations will be notified of their eligibility for the Part II examinations as soon as possible.

NEW LOOK FOR AN OLD JOURNAL

Current Research in Anesthesia and Analgesia is the oldest journal of anæsthesia published in the United States. It has now been retitled as *Anesthesia and Analgesia . . . Current Researches* and given an entirely new look. The January-February 1957 issue looks like an entirely new magazine. Only the size appears to remain unchanged. The format is different, and there are new features such as thumbnail sketches of the authors of original articles, and a page entitled "Capsule Review" in which a few lines are written about all the feature articles. The new journal even contains cartoons. The publishers are to be congratulated on the changes they have wrought.

AMERICAN PUBLIC HEALTH ASSOCIATION

The American Public Health Association announces the following officers for 1956-1957, who were elected at the 84th Annual Meeting in Atlantic City, November 12-16: *President:* John W. Knutson, D.D.S., Assistant Surgeon General and Chief Dental Officer, Public Health Service, Washington, D.C. *President-Elect:* Roy J. Morton, C.E., Oak Ridge National Laboratory. Chairman of Executive Board: Lawrence J. Peterson, M.S.P.H., Director of Health, Idaho Department of Health, Boise.

Reginald M. Atwater, M.D., is executive secretary.

The Association will meet in Cleveland on November 11-15, 1957. Dr. J. G. Smith, health officer of Cleveland, is chairman of the local committee in charge of arrangements. Headquarters will be in the Cleveland Public Auditorium. In addition to scientific sessions, this annual gathering in-

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cludes more than 250 technical and scientific exhibits demonstrating products, techniques and programs of special interest to public health workers.

CANADIAN PÆDIATRIC SOCIETY

The annual general meeting of the Canadian Pædiatric Society is to be held in Winnipeg, Man., June 12 to 15; the place of meeting will be the Royal Alexandra Hotel. The meeting will be held in conjunction with the American Northwestern Pediatric Society and will coincide with the scientific opening of the Winnipeg Children's Hospital.

BOOKS AND JOURNALS FOR RUMANIA

One of the newer universities in Rumania is the University of Tirgu-Mures, founded in 1945 and maintaining a medical library with approximately 72,000 volumes (books and periodicals). The Librarian has communicated with this Journal indicating the interest of his university in obtaining through exchange or purchase Canadian medical books and periodicals, and in particular the following periodicals: *Bulletin of the Institute of Child Study, Toronto, Canadian Journal of Psychology, Canadian Journal of Public Health, Canadian Welfare, Laval Médicale, l'Union Médicale du Canada.* The Librarian can obtain for transmission to Canada a number of publications in Rumanian on practically all the specialties in medicine, as well as other books and periodicals, of which lists will be submitted on request. Organizations interested in an exchange of literature with Rumania are asked to write to the Chief Librarian, Filimon Vera, Institutul Medico-Farmaceutic din Tirgu-Mures, Biblioteca Centrala, Tirgu-Mures (R.A.M.), Rumania.

MEDICAL CONGRESS IN RUMANIA

The organizing committee announces that the National Congress of Medical Sciences of the Rumanian Republic will take place in Bucharest, May 5-11, 1957. The proceedings will be arranged in four sections: (1) physiology (role of the nervous system in the regulation of visceral function); (2) internal medicine and surgery (rheumatism); (3) endocrinology and neurology (the epiphysis, epilepsy); (4) microbiology (virus hepatitis, leptospirosis and malaria). Foreign scientists and physicians are cordially welcomed. Information from Congrès National des Sciences Médicales, Bucharest, 125 Calea Victoriei, Rumania.

INTERNATIONAL MEDICAL AND SURGICAL MEETINGS IN ITALY

The General Secretary of *Minerva Medica,* Corso Bramante 83-85, Turin, Italy, announces the Third International Medical - Surgical Meetings in Turin from June 1-9, 1957. These meetings, which will take place in the Exhibition Palace of Turin, will include international congresses, seven national congresses, ten symposia and various other meetings. The international congresses will be on nuclear medicine, photobiology, and problems of goitre. There will be international symposia on cardiovascular surgery and artificial heart-lung machines. The University of Turin will confer honorary degrees on a number of scientists, and the Acad-

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emy of Medicine of Turin will confer the St. Vincent Prize of 10 million lire.

In addition there will be an international medical and scientific film festival with prizes for the best films, and various exhibitions devoted to pure and applied art. Information from the Secretariat, Minerva Medica.

AMERICAN COLLEGE OF CHEST PHYSICIANS

The American College of Chest Physicians announces that the 5th International Congress on Diseases of the Chest will be held under its auspices in Tokyo, Japan, September 7-11, 1958. Post-Congress meetings will be held in Hong Kong and Manila where adequate hotel accommodation has been assured for officials of the College. The Committee on Scientific Program is now ready to accept offers of participation in this Congress. Titles of papers and a brief abstract should be sent to Dr. Andrew L. Banyai, Chairman, Council on International Affairs, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11, Illinois, U.S.A.

CENTENARY OF A MEDICAL JOURNAL

Our Dutch contemporary, *Nederlandsch Tijdschrift voor Geneeskunde* (Dutch Medical Journal), reached the ripe age of 100 years on January 1, 1957. As in Germany, scientific and organizational medical journals tend to be separate; the Dutch Medical Journal is now purely a scientific journal, although it was formerly the official organ of the Netherlands Medical Association. It began its second century with a changed format and also some celebrations in the University of Amsterdam on Saturday, January 5, followed by a reception and a dinner. We wish it well for the future.

INTERNATIONAL CHILDREN'S CENTRE

The International Children's Centre announces its program of teaching for 1957. This includes four courses: Course on School Health Problems; Course on Social Pædiatrics; Training Course for Teams in Charge of Rearing Premature Infants, and Practical Training Course for Personnel in Charge of the Rehabilitation of Children Affected with Motor Disabilities. Further information from International Children's Centre, Château de Longchamp, Bois de Boulogne, Paris XVI^{e}.

UNIVERSITY OF BUFFALO POSTGRADUATE COURSE IN PÆDIATRICS

The University of Buffalo School of Medicine announces a postgraduate course in pædiatrics on six Wednesday afternoons, March 13 through April 17. They will be held at the Children's Hospital, Buffalo, and will stress recent advances in pædiatrics, particularly in therapy. Patients recently admitted will be presented and their diagnosis and treatment discussed. Further information from Milton Terris, M.D., Assistant Dean for Postgraduate Education, University of Buffalo School of Medicine, 3435 Main Street, Buffalo 14, N.Y.

COURSE IN LARYNGOLOGY AND BRONCHO-ŒSOPHAGOLOGY

The next Laryngology and Broncho-œsophagology course to be given by the University of Illinois College of Medicine is scheduled for the period November 4 to 16, 1957. The course is under the direction of Dr. Paul H. Holinger.

Interested registrants should write directly to the Department of Otolaryngology, University of Illinois College of Medicine, 1853 West Polk Street, Chicago 12, Illinois.

TRANS-CANADA TELEPHONE SYSTEM'S SCIENCE SERIES

The role which television can play in gaining public understanding and appreciation of the tremendous contribution of medical science to modern living is demonstrated in "Hemo the Magnificent", a one-hour film about blood and its circulation which was telecast over Canadian television stations this month.

Second in the Trans-Canada Telephone System's Science Series,

"Hemo the Magnificent" uses live actors, cartoon animation and microscope photography to present an accurate and interesting picture of what is known about the blood.

The Trans-Canada Telephone System's Science Series is designed primarily to attract younger people into the fields of scientific research and engineering where they are vitally needed today. At the same time, the series is expected to enhance the general public's comprehension of scientific progress.

In order to reach the widest possible audience, 16 mm. prints in colour of each film in the series are being made available for showing before groups and clubs. After the end of March arrangements can be made for such showings of "Hemo the Magnificent" by calling a local business office of any of Canada's major telephone companies.

To insure authenticity of scientific fact, a special Scientific Advisory Board is supervising the entire Science Series. Member for the field of medicine is Dr. John Z. Bowers, University of Wisconsin. For this particular film, additional advisers – experts in physiology–were engaged. They include Dr. Maurice B. Visscher, University of Minnesota; Dr. Chauncey D. Leake, Ohio State University; Dr. Gordon K. Moe, State University of New York; and Dr. Allan Hemingway, University of California.

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THE DANGERS OF TRANQUILLIZING DRUGS IN ANXIETY STATES

Dickel and Dixon of the University of Oregon Medical School read a paper at the clinical meeting of the American Medical Association last November (*J. A. M. A.*, 163: 422, 1957) which deserves study by every practising physician. They discussed the aptness of the label given to this modern age as "The Age of Anxiety" and quoted statistics to show that anxiety affects perhaps 25-50 million people in the United States alone. From such statements as that of one drug company that in 1956 some 30 billion tablets of a particular tranquillizing drug had been sold to the American public, it would seem that few U.S. citizens have not tried one or other

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of the tranquillizers. Thus the treatment of anxiety and anxious patients is big business, with pressure on the doctor to make it more so.

Dickel and Dixon have in the last seven years seen approximately 8200 persons in whom anxiety was the chief finding. These were persons of essentially normal physical makeup, possessing rather definite advantage or superiority in intellectual capacity, working steadily or capable of working, and coming to the physician complaining of tension, worry, anxiety and some physiological concomitants. Some 7500 of them had already been given some tranquillizing drug. Analysis of the results showed four types of complication and danger of this treatment: physical danger to the patient which included liver disturbance, skin disturbance, allergic phenomena, gastro-intestinal upsets and generalized toxic effects; there had been 400 unpleasant or unfavourable responses in this series of 8200 patients. Of the non-physical dangers to patients, there were 1700 instances in which anxiety or depression was made worse, and 827 patients in whom emotional illness was aggravated. This is a serious danger to medicine and to the physician in that the latter may prescribe a tranquillizer instead of putting some thought into giving psychotherapy. The danger to society is that the use of tranquillizers goes hand in hand with a philosophy intimating that fear and anxiety are evidences of illness and are to be avoided or necessitate therapy. This philosophy is hardly conducive to progress on the part of the nation.

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UROPEPSIN DETERMINATION IN DIAGNOSIS

Uropepsin, a proenzyme found in the urine, is thought to represent a fraction of the pepsinogen secreted by the chief cells of the gastric mucosa. Some investigators have thought that rate of excretion is a simple and accurate index of gastric secretion. At the Mayo Clinic, Green and Power (*Proc. Staff Meet. Mayo Clin.*, 32: 6,

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1957) studied the 24-hour excretion of uropepsin in a group of 120 normal subjects and 120 patients with gastro-intestinal or adrenal disorders. They found such wide variations in value for uropepsin in each group that they found it impossible to establish a range of value as characteristic of any individual disease. However, in five patients with pernicious anæmia and one who had undergone total gastrectomy uropepsin excretion was nil. In general, determination of excretion of uropepsin did not offer enough diagnostic aid in this series to warrant its routine use in study of patients with gastro-intestinal complaints. In particular, Green and Power note that any physical or emotional stress tends to increase excretion; this may account for variability in results.

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SENNA AS A LAXATIVE

Senna in various forms has been used as a laxative since time immemorial, and the multiparæ of Britain are particularly addicted to it. Doubts have been cast upon its efficacy from time to time, in view of the variability of results obtained. The *British Medical Journal* (1: 436, 1957) has recently published two accounts of trials of the older syrup of senna B.P. and a newer standardized granular preparation known as Senokot. Trials were conducted on hospital patients both in long-stay wards and in puerperal wards. Results confirmed the current view that the B.P. syrups had unpredictable and widely differing effects. It was shown, however, that the new granular preparation of senna pod in the dosage recommended, 6 g., was chemically stable and had a potent and constant laxative effect.

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MEDICAL HISTORY

A handsome newcomer to the field of medical history has recently appeared in London, England. January 1957 saw the publication of the first issue of a quarterly journal devoted to the history and bibliography of medicine and the related sciences. The new journal is called *Medical History*, and has been adopted as the official organ of various historical societies including the Scottish and Norwegian societies for the history of medicine and the Osler Club of London. It is in the capable hands of Mr. W. J. Bishop, the well-known London medical bibliographer. The first issue suggests that this is going to be an important periodical for medical historians. The contents begin with a survey of British Parliamentary Papers, better known as Blue Books, by Sir John Charles, Chief Medical Officer of the Ministry of Health. He delves among the Blue Books of the Victorian and Edwardian era and comes up with some very interesting matters in public health. The next article, by Goodall, describes in detail the health of that rather unpleasant and unwashed regal character, James VI of Scotland and I of England. Filthy of body and tongue, a notorious homosexual and a sickly man with a multiplicity of ailments, James died a worn-out old man at the age of 59. Anning writes on the historical aspects of venous thrombosis, and Gray contributes a note on John Hunter and veterinary medicine. Williamson describes the plague in Cambridge.

The rest of the journal consists of some short texts and documents,

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society reports, news and notes, book reviews and a very welcome section on medical anniversaries of 1957. Medical historians everywhere will extend a hearty welcome to this vigorous newcomer.

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PARENTERAL ADMINISTRATION OF RITALIN

Methylphenidate hydrochloride (Ritalin) in 1% solution has been given a clinical trial to counteract the well-known side-effects of reserpine, promazine, or chlorpromazine (sleepiness, lethargy, tremors, drooling, nasal congestion, conjunctivitis, and Parkinson syndrome). Doses of from 10 mg. to 30 mg. have been administered intravenously three times daily for 24 to 72 hours. The injections have been well tolerated, only a few out of a number of 164 patients showing a mild side-effect such as apprehension and fear or overactivity. Four patients did not react at all. The improvement could be maintained by continuing oral administration of the drug. Another group of 11 psychotic patients with long-standing regression and underactivity reacted within a few minutes with improved activity lasting for hours; the improvement could be maintained by repeated administration of the drug.—Ferguson *et al.*, *J. A. M. A.*, 157: 1303, 1956.

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TENTH INTERNATIONAL HOSPITAL CONGRESS

The Tenth International Hospital Congress, organized by the International Hospital Federation, will be held in Lisbon from June 3 to 7, 1957, under the patronage of His Excellency the President of the Republic of Portugal, who will honour the opening session with his presence. The chairman of the Congress will be Avv. Luigi Colombo, chairman of the Council of the Hospital Institutes of Milan, vice-president of the Italian Hospital Federation, and president of the International Hospital Federation. Headquarters of the Congress will be at the Hospital de Santa Maria, in Lisbon, one of the most modern teaching hospitals in Europe.

The central theme of the Congress will be "International Cooperation for Hospital Development (The Hospital of the Future)". Plenary and study sessions will deal with this subject from the point of view of future needs and endeavour to determine how hospitals throughout the world may prepare to meet these needs and to deal with the increasing demands made upon them. Various aspects of the central theme will be discussed during the study sessions. While certain questions will inevitably be of greater interest to some of the professions concerned with hospital activity than to others, the choice of subjects has been based upon the

fundamental concept of the hospital as an organic whole. Certain specific problems relating to hospital planning and construction, administration and patient care will be discussed under the guidance of the International Hospital Federation's permanent Study and Research Committees which have undertaken a special study of these problems.

The official Congress languages will be English, French and Portuguese. Simultaneous translation of all papers and discussions will be provided by a team of professional interpreters. Summaries of the papers to be presented will be circulated before the opening of the Congress. In conjunction with the Congress there will be an exhibition of some of the latest developments in the field of hospital equipment. Social functions will include a Congress dinner, receptions, visits to hospitals, and excursions.

Participation is open to persons interested in any branch of hospital and health service, whether members of the International Hospital Federation or not, and to their guests. Two travel agencies have been appointed as official agents of the Congress: the American Express Company for travel to and from Lisbon, and the Agência Europeia de Viagens for all arrangements connected with the participants' stay in Lisbon. Registration forms should be obtained at once from the Secretariat of the International Hospital Federation, 10 Old Jewry, London E.C. 2, England.

PRIMARY HÆMORRHAGIC DISEASES

Primary hæmorrhagic diseases have been studied by a group of workers from the departments of physiology of the University of North Carolina and New York University College of Dentistry (J. H. Lewis, J. H. Ferguson *et al.*). In an article published in *J. Lab. & Clin. Med.* (49: 211, 1957) these authors report that they have encountered such disorders in 101 of a series of 240 patients with bleeding symptoms. All of the patients included had been subjected to a very complete battery of hæmatological laboratory and clinical tests. It is interesting to see that the variations met with in their normal controls ranged from 60 to 140% of accepted normal values. These variations were encountered mostly in the fibrinogen level determinations and in the platelet counts, but not so much in the prothrombin, proconvertin or P.T.C. level assays. Day-to-day variations in anti-hæmophilic factor, proaccelerin and platelet factors could not be assessed, as no fixed standards were employed. These authors suggest that the mechanism responsible for an increased bleeding time and a positive tourniquet test in pseudohæmophilia, thrombocytopathia and thrombocytopenia may possibly be the same in all three instances.